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ComputerWeekly

Thursday, May 26, 1983

PT7 cuts costs
FERRANTI
Computer Systems

CLARK . . . Rosy prospects.

Plessey set for 28% profit boost

by Philip Hunter

PLESSEY's Sir John Clark looks set to report a healthy 28% increase in pre-tax profit from £111 million to about £145 million for its year ended March 1983. And with the company's US presence in the market for main telephone exchanges now firmly established and expected to become profitable by mid-1984, immediate prospects are rosy.

Plessey has also secured a lead role in development of British Telecom's System X, with the prospect of export sales to Europe, and possibly later to the US after adaptation. Plessey shares the development with GEC after Standard Telephone Company dropped out.

Plessey's latest move in reorganising its North American strategy is to sell off its Canadian subsidiary, Plessey Canada. A deal is being negotiated with TIE Communications Canada, and Plessey expects to sell the subsidiary for about £6.5 million, making a fair profit.

Last autumn, Plessey took over the part of US company Stromberg Carlson that makes main exchanges for £33 million. Plessey did not bid for the part of Stromberg that makes private automatic branch exchanges (PABX), since it has its own IDX product.

Stromberg will certainly report a loss for the year ended March 1983. But it expects to benefit from increased demand for main exchanges following liberalisation of the US telecomms market, and run into profit by the final quarter of this financial year.

Plessey says that the sale of its Canadian company follows naturally from the acquisition of Stromberg. With the IDX equipment eventually being made and distributed by Stromberg, there will be no room for the Canadian products in the market.

Another important US move, coming close on the heels of the Stromberg takeover, was the setting up of a joint $1 million company to develop scientific communications with the $300 million US company Scientific Atlanta (SA). Plessey is the majority shareholder in the new company, and also has an option to acquire up to 30% of SA during the next few years.

Poll bid to lift VAT on micros

by John Kavanagh

THE computer industry has its own eccentric party for the General Election – but with serious undertones. Freelance programmer Peter Dick has formed the Basic Party, with three election platforms: The abolition of VAT on microcomputers, the removal of the 70mph limit on motorways and "pussy passes" to enable pensioners to buy cat food at cut rates.

"I'm not saying my stand is without humour, but I do believe these are serious issues," Dick said. He is standing in his home constituency of Hammersmith, West London.

The Basic Party manifesto argues that microcomputers are educational tools and, like books, should be free of VAT to encourage wide use. The removal of VAT would boost sales and thus create jobs, Dick argues.

The manifesto adds: "Clearly an increase in government provision for computer training is vital to the prosperity of the nation." It calls for grants for people who want to attend computing seminars (Dick was also a founder of a firm which runs seminars).

The 70mph limit should be removed because it turns ordinary citizens into criminals and brings the good name of the police into disrepute, the manifesto says.

It adds that pussy passes should be introduced because pensioners are unlikely to benefit from the removal of VAT or the abolition of the speed limit.

DICK . . . Standing for no VAT on micros – and pussy passes for pensioners.

There are eight candidates standing in Hammersmith, including a Liberal and an SDP-Liberal. "I wouldn't say it's a foregone conclusion that I'll win," Dick said.

"My aim is to make the point about computer education, not to win an election."

■ Sinclair and Osborne microcomputer users can get an early feel for the likely balance of power in the next Parliament from a software package developed by one of Margaret Thatcher's advisers, Christopher Monkton. The system, called Swingometer, works on opinion poll findings or early election results to show the number of seats each party is likely to win. It was written for the Conservatives to show the effect of recent constituency boundary changes. And it said the SDP £10 package is available from Impex portable Software.

FYLSTRA . . . "Industry-wide standard".

Xerox teams up to cut cost of Ethernet access

by Robert Parry

ETHERNET local network pioneer Xerox has teamed up with microsoftware company VisiCorp and interface supplier 3Com to cut the cost of access to Xerox's Ethernet network services. The three companies announced a co-operative project at the US National Computer Conference in Anaheim last week.

Xerox will develop applications to sit on top of VisiCorp's VisiOn product running on the IBM PC, making Ethernet services accessible to PC users. VisiCorp will market these network applications worldwide to run with VisiOn on the IBM PC, while 3Com will provide the direct hardware and protocol software connection to the network.

"Xerox is in the business of giving office automation tools and services," says vice-president, office systems division, John Shoch. "Now we are integrating other people's personal computers with our offerings. It depends on the software that sits on top of them. We were impressed by VisiOn, particularly for integrated multiple systems."

VisiOn, a package integrating most common office computing functions into a single unit, was modelled on Xerox's own Star workstation – though with scaled down expectations, adds Shoch. Xerox will work with VisiCorp to implement VisiOn on a Xerox personal computer.

For VisiCorp's part, the link with Xerox and Ethernet means lower-cost entry price for VisiOn systems, as with the network the essential hard disc storage can be shared among users by virtual discing.

It is not the Ethernet will because "whatever individual networks there are, there will be Ethernet as an industry-wide standard," says chairman Dan Fylstra.

Magnuson gets users' votes

by George Black

ALL but one plug compatible manufacturers were rated above IBM for the second year running in a user satisfaction survey.

The user poll, by Datapro Research Corp of New Jersey, gave first place to Magnuson Computers, which filed for bankruptcy under US Chapter 11 law in March.

Second came Digital Equipment – up from fourth in 1982 – and third again was Amdahl. Wooden spoon prize was taken by Control Data, relieving Honeywell of the bottom position after three years.

Following Amdahl in the league table were: National Advanced Systems, the National Semiconductors subsidiary (fourth); IBM (fifth); ITT (sixth); NCR (seventh); Burroughs (eighth); Sperry (ninth) and Honeywell (tenth).

A notable feature of the survey was the strong degree of "brand loyalty" still prevailing, despite aggressive marketing by all the vendors involved. Four out of five users said they would recommend their system to others. And few IBM users want to defect to other makers.

Of IBM 370 users – a system which achieved no better than middling popularity – 43% intend to exchange their machines for a more powerful IBM replacement in the next year.

And of 8100 users – the least satisfactory of IBM's range, according to those who responded – only 7% said they would switch to a non-IBM make.

Among IBM's systems the best received was the 3080 series, which came fifth behind Magnuson's M80s, DEC's Decsystem-20, Amdahl's 470 and DEC's Decsystem-10.

The IBM 360s, 370s, 3031, 3032, 3033 and 4341 came in the middle of the field. Magnuson M80 series users praised the machines' ease of operation, programming and reliability.

CDC users complained of trouble both in programming and in operating their machines – yet even they did not on the whole intend to abandon their manufacturers for another brand.

Part of the explanation in this case could be CDC's good record in delivering software, which was reported to equal IPL and Magnuson.

Results of the annual survey were based on 3,800 replies to 15,000 questionnaires.

Burroughs to double size of Scottish plant

by Kevin Cahill

BURROUGHS, the US-based computer manufacturer, is to spend £3 million to double the size of its plant at Livingstone, in Scotland. The plant, currently 100,000 sq feet and used mainly to manufacture advanced document processing systems, will be increased to about 200,000 sq feet and will be ready for use by the end of 1984.

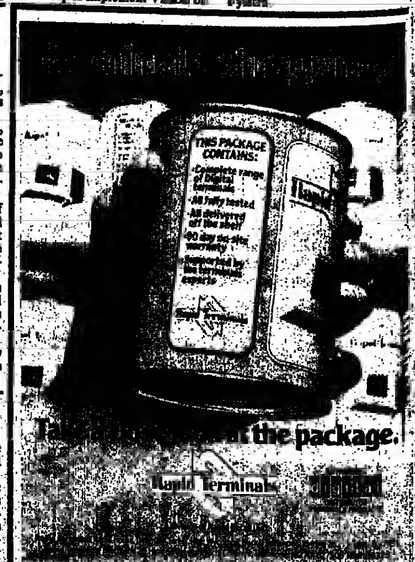
According to a Burroughs spokesman the enlarged plant will be used to build an extended version of the company's Series 8 document processors.

The new production is expected to increase the number of jobs at the plant by about 200.

The Burroughs announcement came at the end of the annual Burroughs computer users conference which included a revelation by the customer service engineering manager, Peter Blcome, that the company had reduced the response time to a mainframe customer call to 1.9 hours.

Blcome also said that response time to mini system customer calls was down to 2.8 hours and he attributed the improvement to the opening of the company's new resource control centre.

Blcome predicted that Burroughs was now responding to 80% of all customer enquiries within four hours.



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Fujitsu holds on to its lead

FUJITSU has consolidated its lead over IBM Japan as that country's No 1 computer company with a record 19% increase in computer shipments for the year ended March 31. Combined with an increase of 25% in sales of electronic components Fujitsu turned in annual profits of 63bn yen, a 25.9% increase on 1982. Sales overall rose 20.2% to 806.8bn yen.

Fujitsu is forecasting growth in sales of over 11.6% for the current year.

UK banks agree

THE UK should have a trial point-of-sale electronic funds transfer system in operation by 1986. The 12 banks involved in the scheme have reached agreement on a £50 million project, which is aimed at reducing the cost of handling the 2.5 billion cheques written each year in the UK.

Honeywell scores

HONEYWELL has scored a victory over ICL by winning a contract to replace Loughborough University's ageing 1904S. Loughborough's 6,000 students will be able to use the new £1.5 million dual DPS8/70 Multics system at the start of the next academic year.

Second source

LOGICA and Plessey have got together to put the Xenix operating system on Plessey's System 68 micro. Microsoft's Unix-derived software has been implemented on the Motorola-68000 chip machine. Logica is now second source for Xenix in Europe and will support UK installations.

The Plessey Board with Sir John Clark claim "none of it is sticking to us – unfortunately."

Defence contractors face 50% profit cut after poll

by George Black

SYSTEMS contractors to the Defence Ministry could face cuts of up to 50% in their profits from this autumn.

The incoming government will be advised to take this drastic step after a Commons committee accused defcoe suppliers of pocketing a £75 million windfall.

The Public Accounts Committee said in a review that it was extremely concerned that the rate of inflation was still being taken as 15% in contracts, even though the current rate is down to 5%. The £75 million is said to be a windfall above the margin originally agreed. And the review says it does not result from improved efficiency.

But computer companies deny they are receivers of this unintended bonus.

"None of it is sticking to us – unfortunately," said Plessey chief executive Sir John Clark.

And Frank Chorley, head of Plessey's defence subsidiary, said: "The Treasury has an unrealistic view of what is a reasonable return. We get around 20% – Is that so exciting?"

Plessey Electronic Systems last year made £29 million profit on a turnover of £326 million. Chorley attributed this to expansion in sales to NATO and the third world – the domestic share was down, he said.

Marconi defence managing director Arthur Walsh denied that his firm had any excessive takings.

"In my experience Ministry accounting is very sharp. I can't understand the context of this comment," he said.

GEC Computers chief Colin Thurston said their contracts were mostly fixed-price, allowing no extra profit.

Scicon, which does a quarter of its work for the MoD, said it had a relatively small involvement in this type of contract.

Around 40% of Ferranti's work is for the MoD. Last year it made about £23 million profit on a £307 million turnover.

■ The Health Ministry is seeking to limit its suppliers to 17% profit, in line with what it thinks the going commercial rate.

Japan's software hits West

by George Black

THE first of a potential flood of Japanese software is set to make its debut in the West.

Two top US software houses, Management Science America and Pansophic, are planning to sell Japanese packages in US and European markets. Both companies are in discussions with Tokyo marketing company Asishuto, which will convert by 1984 a range of Japanese scientific, engineering and systems programs for the English speaking world.

Most UK software companies hold to the theory that Britain will retain a lead in software as the Japanese talents in the field are merely imitative. Evidence for Japanese programming skills is slight, although Sord's Pips environment has won fans, and Matsushita claims its AFL language will make an important contribution to the IBM-PC.

But Asishuto president Bill Totten, a Californian who has lived in Japan since 1969, says the Japanese have been developing applications programs for at least five years to use in shipbuilding and engineering plants.

"They've gone abroad looking for solutions to their automation problems and found little available. They bought what they could find, even when no support was offered. And they've been quietly devising their own answers."

Asishuto has hired three new managers to scout the new computing capabilities of Japanese industrial firms and acquire products, mainly in Assembler, Cobol and Fortran, for IBM and plug-compatible mainframes.

While Pansophic wants to acquire systems programs, MSA is keen to find applications to hitch to its new manufacturing system just launched in the UK. Developed out of a suite owned by Xerox's Arista, which MSA took over last year, this is likely to have a big impact in the crowded manufacturing systems market.

■ Leader Comment, page 13.

TOTTEN . . . "Japanese quietly devising their own answers."

Users act on DECsystem upgrade cuts

by John Kavanagh

DIGITAL EQUIPMENT users are fanning a quick response to the big US firm's axing of work on its upgrade processor for its DECsystem-10 and DECsystem-20 mainframes. The development project has been in trouble for at least 18 months and DEC is now suggesting users upgrade by linking existing processor models together.

DEC customers in the UK were told of the company's decision in personal letters from UK manager Darryl Barbe last week. The news was also announced to an international meeting of the users association, Decus, in the US.

The company said it would now concentrate its top-end processor development on the 32-bit Vax range – but it would continue to build and support the existing 36-bit DECsystem-10 and 20 machines. It would also speed up the integration of the DECsystem operating systems into its network architecture, DCA.

Upgrades would be possible by linking DECsystem processors through the Interconnect facility, launched at the start of the year, which can connect four processors. Further enhancements would be possible by linking DECsystems through DCA to Vax machines for load-sharing. DEC is now working on these Vax links.

Ian Griffiths, computing manager at Trent Polytechnic and chairman of the UK DECsystems user group in Decus, said he was arranging meetings with top DEC people and working on a response.

"We hope to put pressure on DEC to re-engineer the existing models to make them faster," he said. "We also hope to set up an international user task force to get views on what DEC should do."

But although Griffiths and other users described the news as disappointing they were not angry at the company. Griffiths said the proposed upgrade path was "satisfactory but not perfect". He said the DECsystems' operating systems were "superb" and hoped DEC would build the best features into the Vax systems. He added that the DECsystem user group had an excellent relationship with DEC.

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UK firm's bid vetoed in France

by Jack Gee

FRENCH computer firms have ganged up against a British company chosen by the State-controlled electicity utility to prevent it winning a five million franc (£400,000) trial order for a portable billing device. It could have blossomed into 330 million francs (£28 million) worth of orders.

Immediate Business Systems of Milton Keynes had been chosen by Electricite de France (EDF) to develop a small computer with a memory that could contain each customer's account and print a bill as soon as a meter reading is taken.

EDF would thereby speed up collection of bills by several days, a considerable advantage for a corporation with receipts of 12 billion francs (£1 billion) a day.

Immediate Business Systems' device won the French Generating Board's favour because it had already undergone one year of trials in Britain, and the firm seemed likely to get an order for 3,500 machines.

But Communist trade union leaders and senior executives at EDF launched a campaign against the British "invasion" and got left-wing members of France's National Assembly to put questions to Jean-Pierre Chevenement, Minister for Technology and Research, before he was dropped in a government reshuffle in March.

Chevenement wrote to EDF urging it to "undertake a new study of the instant billing project, so that use can be made of French industry's know-how in this field".

Although four French firms submitted tenders one million francs (£80,000) cheaper than Immediate Business Systems, EDF preferred the British system. The utility was confident that the government would respect its choice, following a recent ruling that civil service departments must not direct public corporations on where to buy their equipment.

But when Chevenement's replacement as Industry Minister, Laurent Fabius, presented recently France's top awards for high technology – the so-called "Electronic Oscars" – prize-winner Philippe Danon, managing director of Centratel, seized a microphone and shouted: "We have produced a competitive prototype. Monsieur le Ministre, give us the contract."

Danon later announced that Fabius had told him he had secretly vetoed the British contract.

At the British Embassy in Paris an official said: "As far as we know, the contract is by no means lost. The affair is still being studied here and in London."

EDF has not yet formally told Immediate Business Systems whether or not it plans to go ahead with the pilot project. But it has informed the firm that its entire budget is now being reviewed in the context of France's austerity programme, and this will affect plans for instant billing.

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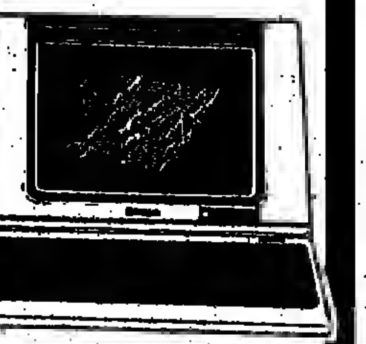

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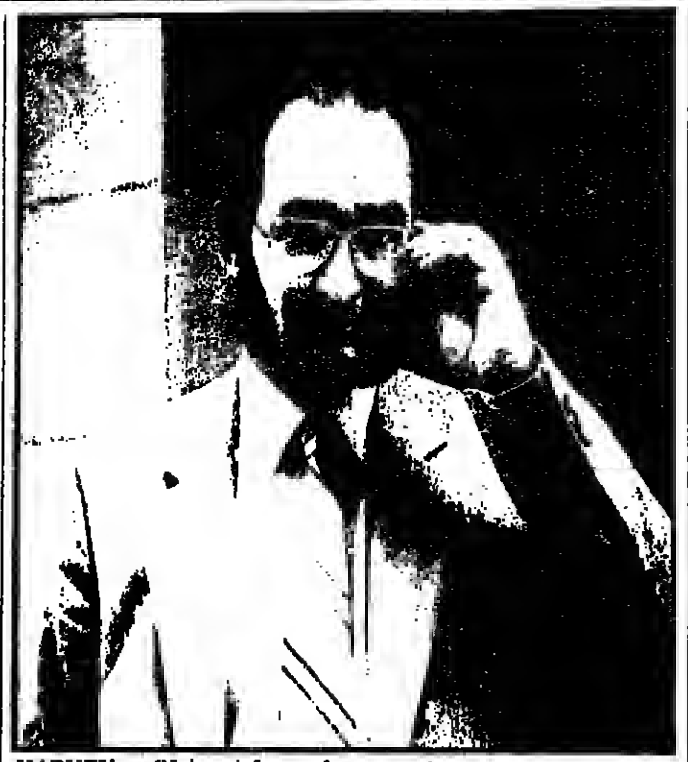

HARVEY . . . *"It is mainframe software – and not a small package."*

Micros can now take on mainframe financial software

by Robert Parry

MAINFRAME financial software has made it down to a micro in its entirety, and the machine, a Wicat 150, has taken over as the development engine for the software.

Planmaster Systems of Beaconsfield has put its Planmaster suite on to the Wicat without omissions or partitioning on to separate discs, and will sell the complete six-user hardware/software package for £30,000 – about the same price as the present IBM mainframe software alone.

The software grew out of internal requirements at Wiggins Teape in the late 1960s, and was initially available as a time-sharing service on a Sigma 9 computer. Last year it became available for IBM systems running VM/CMS. It is designed to provide an effective tool for financial planning and budgeting in large companies.

"It is mainframe software – and not a small package," says Planmaster's managing director Stewart Harvey. "After we moved to the IBM machines we started to look at desk-top systems, as there was a lot of stuff that it could be used for that would not be cost-justifiable on a time-sharing service."

Small minis were considered, but the Wicat micro – supplied through Software Sciences Distribution – was chosen. The software will be moved on to the DEC Vax soon, via the Wicat implementation.

"We were very interested, and very disappointed when 16-bit micros came along," says Harvey.

"The first were just replicated eight-bit machines, and could only give users 64K of memory, which is nothing. But the Motorola 68000 gave a glimmer of light."

Harvey claims that an average Planmaster model can be squeezed into a mere 2% of the theoretical memory space needed for all enties at the required accounting precision.

Supercomputer stakes are joined by NEC

by Kevin Cahill

A FIFTH competitor, NEC of Japan, has entered the supercomputer stakes with a 1.3 gigaflop machine, due in 1985.

"Supercomputer" is the name traditionally given to the large specialised scientific processors pioneered by Dr Seymour Cray, and currently built only by Cray Research and Control Data Corp in the US.

NEC becomes the fifth company in this now rapidly expanding sector of the industry by joining Hitachi and Fujitsu, two Japanese companies which earlier this year announced they would be making offerings in the supercomputer sector in 1984.

In terms of performance, which is measured in floating point operations per second (flops) all the Japanese machines are about one to one-and-a-half generations behind the Cray Research XMP, which runs at 200 to 500 megaflops and is in current delivery, and the Cray 2 which runs at 600 to 1,200 flops and is scheduled for delivery in early 1984.

The NEC machines, designated SX1 and SX2 will run at 570 Mflops and 1.3 Mflops respectively, and will be available in 1984 (SX1) and 1985 (SX2).

The Fujitsu and Hitachi machines, each offered and due for delivery next year run at about 500 and 630 Mflops for the faster models. In terms of machine cycle time the NEC offering at 6 nanoseconds is slightly faster than the Cray at 9.5 nanoseconds.

The NEC machines offer pipeline processing and parallel processing and are built on liquid cooled 4in x 4in modules, each carrying chips with 36,000 gates per module (the Trilogy module is a chip, with 45,000 gates and switching speed of 300/350 picoseconds).

The price of the faster machine is provisionally put at $375,000 a month to rent.

Cray machines cost between and $20 million to buy, with an entry level price of about $1 million for the XMP.

Unix users' Pick link

by Claire Gooding

APPLICATIONS-starved users of the Unix operating system will soon be fed by a new link to the rival Pick environment.

The "bridge" has been developed by the US company Software Express. Unix has been adopted by more manufacturers in the 16-bit market, but Pick's strong commercial presence in the minicomputer field gives it the advantage in applications. The bridge could end the shortage of business software still complained of by Unix suppliers.

Software Express, a new Texas-based firm, is headed by Pick enthusiast Dick Schmoekel. He is using his Pick applications generator Appgen to build the bridge with Unix. Appgen lets end-users write their own portable applications, backed by five suites of business programs.

"We're talking to Zilog and Intel already and interest is running very high now," says Schmoekel, who has also made a deal with Unix manufacturer Plexus. The advent of the bridge could see Pick in a new role as handmaiden to Unix, rather than its rival.

A micro Pick has just been announced, developed in the UK by Universal Computers (UCL). Called Epick, it is a lookalike product which sits on top of the popular Digital Research CP/M operating system. It can run the library of applications for the Ultimate machine, which UCL distributes in this country.

IBM extends software deal

by George Black

IBM has pushed its door a bit further open to the software people – and they have welcomed the chance to work with the company.

The joint marketing initiative, introduced earlier this year for the System/23, has now been extended to cover a broad range of machines, from the Series/1 and Systems 34, 36 and 38, through the 5280, 5520, 6580 Displaywriter and 8100 up to the 4321 and 4331.

The move is part of a liberalisation of attitudes inside IBM and a growing understanding that other people's software can be a strong selling point for IBM hardware.

Ironically, while end-user oriented companies such as IBM, ICL, Sperry and Burroughs are moving more into partnerships with third parties, the pioneers in the collaboration business such as DEC, Data General and Hewlett-Packard are looking increasingly at the user market.

Already Computer Management Group (CMG), based in Croydon, is studying an IBM contract for the new scheme and expects to take up the offer. Its UK general manager Ron White said CMG was keen to be involved.

"We're particularly interested in the possibilities of a two-day deal to sell the 34, 36 and 38 computers," he said. "This is a step in the right direction for IBM. They have probably responded to proposals from American systems houses and now the UK is coming into line."

CMG has moved into the low-end of the IBM area, last year netting several big contracts worth at least £750,000 based on System 34s and 38s.

Data Logic's UK managing director Alan Thomas said it was a "very intelligent move" for IBM and would help to maintain the tremendous momentum it had built up in the market over the past year.

THOMAS . . . *"Intelligent mo*

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IBM PC brings a chip famine

by Robert Parry

A BOOM in personal computer manufacturing has created such an upsurge in demand for microprocessor and memory components that the most glamorous lines are getting in short supply. Lead times for Intel's 8088 – used in IBM's Personal Computer and its host of imitators – and 8086 processors are particularly hard hit, with customers now facing five or six months' delay between order and delivery.

"Lead times are certainly stretching out," says Intel's European operations manager for microcomputers Jeff Katz. "Three or four months back we were quoting four weeks. Now it's more like 24 weeks."

And in the US Intel's top microprocessor man Dave House sees no slowing of demand from customers. "The market is going crazy – it's not healthy and it cannot last." He reckons there are a lot of companies buying 8088s as though they could take a large chunk of the IBM PC market.

At AMD, an official second source for the 8086 family, the story is much the same. Southern regional sales manager Bernard Perrin says that lead times have rocketed from eight weeks at most a month ago to 20 to 26 weeks.

And memories have gone out with them, he adds, as the devices are all competing for the same MOS capacity.

"Anyone without order cover to the end of the year is going to have problems," says Perrin.

There is a lengthening of lead times and hardening of prices all over, particularly for 64K dynamic RAMs. "Generally lead times are not going out too fast," says Ray West, managing director of component distributor Celdis, "except in certain key areas."

Nigel Williams, of Oki distributor Manhattan Skyline, confirms the dramatic increase in demand for 64K dRAMs. "It is difficult to get allocation of the parts," he says.

Meanwhile Intel is preparing itself for the next generation of the 16-bit family, its 186 and 188 processors. "We have been shipping parts in smaller quantities than customers would like, but are ramping up production," says Katz. "Demand is growing at a faster rate than any other microprocessor product we have had – ever."

HOUSE . . . *"Market is going crazy – it's not healthy and it cannot last."*

Trilogy a step closer to new mainframe

by Kevin Cahill

TRILOGY this week unveiled the 6cm x 6cm chip which is at the heart of the company's new mainframe range. According to early reports, the chip – the first attempt at large-scale wafer level fabrication to go into production – is implemented in water-cooled emitter coupled logic, the industry standard semiconductor base for fast computers.

Unlike the current IBM thermal cooled module (TCM) the Trilogy TCM has a simple, one input one output, chilled water coolant, and mounts a total of 45,000 gates and 1,000 connecting pins per module.

The IBM TCM consists of about 100 separate chips mounted on a complex and expensive ceramic substrate interconnect board. The total gates per IBM chip is 600, to give a module total of 6,000, or roughly one-seventh the number of gates on the Trilogy chip.

The Trilogy chip eliminates the special TCM substrate board by incorporating most of the initial interconnections inside the chip itself. The Trilogy TCMs are connected by standard 14-layer printed circuit boards. About 30 TCMs will form the basis of the new Trilogy machine, which, as a direct result of the dense chips, will need only 40% of the power of IBM's current 3084 quadriprocessor.

The switching speed within the Trilogy chip is 300 to 350 picoseconds, which compares with a switching speed of 24 nanoseconds in the fastest current serial processor, the ICL Atlas 10 (alias the Fujitsu 380).

CHANDOR . . . *"DEC has realised that videotex is something different."*

DEC to sell Aregon software in America

by Donald Kennett

US GIANT Digital Equipment is to sell video software in the US for the UK's publicly-backed Aregon International in a joint marketing deal.

At the same time, DEC has bought an Aregon IVS-3 videotex system for the first of what could be many in-house applications.

Aregon's software runs on DEC Vax and PDP-11 minicomputers. The agreement formalises the close co-operation which has existed between the firms for some time.

DEC recently changed its marketing strategy from one where specialised teams attacked vertical market sectors to one of specialising in applications to sell across the whole market. Last year it announced its intention to make deals with software houses, and the agreement with Aregon is the first in the videotex field, although DEC minis are used by a number of videotex companies. Among them, the French company Sterla and the Canadian company Infomart have been particularly active in the US.

DEC's UK office systems marketing manager Roy Graham, who last year helped to set up the agreement in his role of US videotex marketing manager, said: "Aregon was offering a product capability we didn't have in our catalogue. That was very attractive to us. The agreement will allow us to do first level representation of Aregon's products – that means supplying its literature to our prospective customers."

The agreement is designed to make sure users are fully supported. It defines the respective responsibilities of each company and provides for joint sales proposals and cross training of each other's personnel.

Aregon International managing director Anthony Chandor said that the order for the in-house system had been won by his company's ability to get something workable running very quickly and by the system's ability to support DEC VT-100 VDUs as well as videotex terminals.

"DEC has realised that videotex is something different from just colours and graphics and pictures," he said. "It's about getting something up and running quickly, suppressing complexity for the user and using existing systems and databases to provide information to large numbers of people."

Steve Jobs wants to give Apples to the teachers

by Howard Karten

APPLE Computer has launched a computer giveaway programme for 10,000 elementary and secondary schools in California.

The firm will donate £21 million worth of Apple IIE (65K) computers, terminals, disc drives, manuals, and Apple logo software. The retail value of each system is around $2,364.

Shipments will begin in July and continue through the summer.

The programme, called "The Kids Can't Wait," will be supported, in part, by California State tax credits amounting to 25% of the equipment's market value.

By law, the equipment must be used for direct educational purposes, and only elementary and secondary schools with a minimum enrolment of 100 pupils will be eligible. Private non-profit schools for the physically or emotionally handicapped will also be eligible.

Apple founder Steve Jobs has something of a messianic attitude towards computers. Announcing the programme, he said: "We are in the midst of a revolution that is of the same magnitude and power as the industrial revolution of the 19th Century.

"To maintain America's technological leadership, we must begin training students of all grade levels in today's computer technology. If we do not, we risk producing a generation of Americans who will be both non-competitive and non-literate in the information society now evolving."

Apple is also expecting the programme to generate sales, by inspiring the pupils and using them as salesmen on their parents.

The programme comes at a time of anxiety about the use of computers in schools. It is said that many are idle, because of teachers' ignorance and a lack of suitable software. And some say that computers could widen the gap between wealthy and poor schools.

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US giant makes $31m bid for Mathematica

by John Kavanagh

A $31 MILLION takeover could make Mathematica, owner of the Ramis English-like inquiry system, part of the giant Martin Marietta Corporation. The company will keep its name and operate as part of Martin Marietta Data Systems, a $245 million services company.

The deal, to be put to shareholders next month, would make Mathematica an associate of the UK systems house Hoskyns.

Mathematica has sales of $36 million and profits of $1.4 million. Half its business comes from Ramis on IBM mainframes and the rest from economic and computing consultancy. In the UK all the business is from inquiry language Ramis II.

"The software business is becoming heavily capital intensive and there is a need for sales forces and constant product development," said Mathematica president Dr Tibor Fabian, who, at 60, is going into semi-retirement.

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Rodime to hit US — twice over

by Robert Parry

RODIME, the Scottish manufacturer of Winchester discs is breaking into the US on two fronts.

Ampex, which until last month was reselling Rodime 5¼in. drives from Scotland under its Pyxis label, has exercised its option to build the drives under licence.

But the importance of a second source in the US, planned since the signing of the Ampex deal, is overshadowed by Rodime's imminent moves to start manufacturing its Winchester drive units in the US on its own account.

"When we set up the Ampex deal, we hoped to get a second source quickly," said Rodime's marketing manager Malcolm Dudson. "It has not been particularly quick, but it has happened. Now Rodime has plans for its own US plant, which are very well advanced. The hope for our own US manufacture, which we have always had, has come to fruition sooner than we expected when we set out."

The bulk of Rodime's order backlog, 65% said Dudson, is in the US, so building drives there rather than in Glenrothes, Scotland, and shipping them over, must be appealing. Those order backlog figures apply only to drives sold under the Rodime name, and do not include the Ampex drives.

DUDSON . . . *Plans for Rodime's US plant sooner than expected.*

Ampex is the only US company building Rodime drives or selling them under another name. There are no other licensees, said Dudson. Ampex did not take a large part of Rodime's output, he added, and only has rights to the initial R0100 series and the early R0200 series drives.

"Specifically they do not have the high-capacity 200 series drives nor the 3½-in drive," Dudson added.

But Ampex has plans to extend its Rodime-based offerings. "We will move to put Ampex's plated media into the Rodime boxes around September," said Carter O'Brien, Ampex's manager of disc product marketing.

Dealers are letting us down, says Globe MD

by Georgs Black

A BRITISH micro builder has blamed unreliable dealers for holding up the progress of its machines. Most dealers are underfinanced and much slower to pay suppliers than they are to sell their hardware, says Alex Paterson, managing director of Globe Business Machines in Somerset.

Globe sells through 45 countrywide dealers; but according to Paterson it has had to dispense with the services of at least as many since going into business last October.

Globe's Intel-8086 chip machine was put together on Paterson's kitchen table at an initial development cost of £4,000. But Globe has had to get backing of about £500,000 to get into production and keep the business going — much attributable to slow payment by dealers, says Paterson.

The money has been raised by private investors, a government loan and a £100,000 injection by City venture concern ICFC.

British lead satellite venture

by Donald Kennett

FIVE companies led by British Aerospace have joined to form the first multinational marketing consortium in the space industry. The consortium will develop and sell large and powerful Olympus class satellites, based on the L-Sat design commissioned by the European Space Agency.

BAe space and communications division managing director Peter Hickman said that the rechristening was an attempt to give the satellites a more euphonic name. "It stands for Operational Large Multi-Purpose Satellite," he said. "But I prefer to think of it as the classical seat of the gods from which all information flowed." He was speaking at Satellite Summit Europe, a three-day conference held in London last week by CIT Research and the US magazine *Satellite Week*.

The consortium includes the first non-European company to be involved in European space efforts — the Canadian company Spar Aerospace — but Hickman said he would welcome any US company that wanted to join in. "We are cooperating closely with at least one," he said. The other European companies are Fokker of Holland and Aeritalia and Selenia Spazio of Italy.

The first Olympus satellite is due to be launched in 1986, providing six transponders for mixed business communications and two for television channels, one specifically for Italy. The smaller Olympus satellites will be designed to generate 3.5 kilowatts of power from their solar cell arrays and to be launched by Ariane rocket.

The largest will generate 7.7kW and will have to go up in the US Space Shuttle. This will provide up to 150,000 half-circuits for telecommunications.

Hickman also announced a new industrial collaboration with Matra of France, called Satcom International, which will design and build an 800 Watt class of satellite to sell at a competitive price on its own merits in the world market.

File management for under £10,000

by Donald Kennett

XIONICS has launched a low-cost version of its Xibus file management system, bringing the entry-level cost down from £70,000 to under £10,000.

Micronode is a dual-processor box that will support up to eight of Xionics' multi-function workstations, providing over 200 of the software options from the Xibus library. Other functions available for the larger version such as digitised voice annotation and messaging, are being developed for the smaller one.

Mike Bevan, managing director and founder of the company, said that the smaller system would boost sales, particularly overseas, where it is difficult to train distributors for the larger version.

The company's strategy is based on integrating facilities provided by other vendors' systems into a single service from a multi-function workstation.

"We are in the business of integration — making a function running on an IBM look as if it's running on the user's own workstation," said Bevan. "We get you into IBM, DEC, viewdata and telex. That is the reason we don't lose any competitive tenders."

The Micronode was developed at the suggestion of several of Xionics' prestigious customers, which include ICI, the GLC, BP Oil and Midland Bank. "When customers extend their systems to new sites, they don't want to go quite so far as on the main system," Bevan said. "So they asked us to do a microcosm. You can have a mainframe link directly out of a Micronode and, where there are a lot of them, there is no reason why you shouldn't use PSS as an inexpensive way to link them."

SALES BRIEF

BT spends £60m on STC telexes

STANDARD Telephones and Cables has sold £60 million worth of telex terminals to British Telecom since the beginning of 1982, following a third big order of £29 million.

The equipment won a 1983 Design Council Award, and brings word processing into the telex scene.

Council update

BURY Council has replaced old Rediffusion Seccheck equipment with an R2805 Telecentre from the same company, to check data used for payroll, rents, rates and register of electors among other applications. The data runs on an ICL 2900 series mainframe after verification.

Cashing in

UK OEM Chapman Cash Processing has ordered three more minis from hardware maker Computer Automation for use in British Telecom's All Change system to count cash collected from telephone boxes. More orders are likely to follow as BT extends the system, introduced last summer, to all its regions.

Cable contract

BRITISH Telecom has won a £1 million contract to lay 280 miles of cable to link Bahrain, Qatar and the United Arab Emirates, using its cableship Iris. The cable will be made in Japan. Fujitsu was given the main contract worth £30 million, with the Marine Services Division of British Telecom International as sub-contractor.

Design aid

BRITISH Telecom has gone to the CAD arm of the Delta Data group for a program to help design terminal equipment such as telephone handsets. The program, called Duct MK IV, will run on a Digital Equipment Vax computer alongside a draughting package.

University choice

BIRMINGHAM University has chosen Bedford-based Insight Terminals for 270 video terminals. The order includes Alpha and graphics terminals for connection to the Honeywell mainframe at the university's computer centre.

Swedish links

ICV Information Systems has picked up a £500,000 contract to develop videotex link between London and Stockholm from the Swedish Post Office. The link will be used to give anyone in Scandinavia with a videotex terminal access to international information gathered in London.

$4m mainframe

US COMPUTER giant Sperry, which recently dropped its Univac surname, has scored a $4 million mainframe order from a large Italian supplier of financial information. The system will be based on the Sperry 1100/91, and will be used to bring 85 of Italy's 95 chambers of commerce into a financial network.

More PABXs

PLESSEY has won another big order from British Telecom coming close on the heels of the £25 million contract to supply a new telex exchange in London. The new order, worth £6.4 million, is for more PABX systems, bringing total sales for the product to £70 million since first orders were

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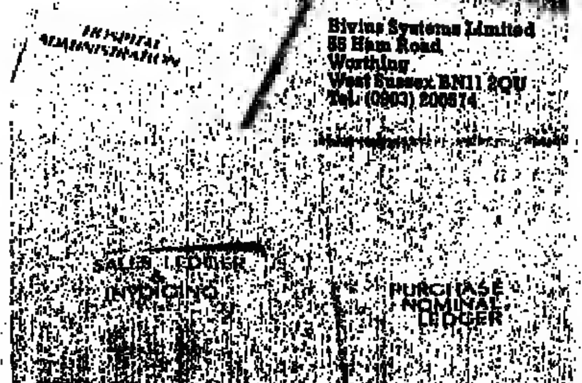

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Put money where your mouth is — Edwardes

EDWARDES . . . *"Now I invite Mercury's many supporters to back up their words with action."*

by Donald Kennett

SIR MICHAEL EDWARDES last week told dissatisfied Telecom customers to put their money where their mouths are.

The part-time chairman of Telecom rival Mercury challenged British industry to become Mercury customers, although he admitted that the company was at least a couple of years away from being able to offer a full range of services.

Edwardes, in his first public speech since moving to Mercury, told the Online Business Telecom conference in London:

"Everywhere I go I hear support from businessmen for the launch of a competitor (to British Telecom) and for the stimulus this has provided so far. So now I invite Mercury's many supporters to back up their words with action.

"To place orders with Mercury is an exciting venture to a new field. If British business wants the benefits of competition in telecommunications, it must have the courage to undertake that venture jointly with us."

Despite his belief in the benefits of Mercury competing with BT, in terms of the effect on UK manufacturers as well as on BT, Edwardes did not want to see the competition extended any further.

"Any government committed to liberalisation needs to be patient," he said, "and not yield to the pressures from either side of the political spectrum, either from those who want to turn the clock back by freezing and undermining liberalisation, or from those who argue that liberalisation should be taken to the point of a total free-for-all in the erroneous belief that this will show some quicker — in fact instant — results."

He praised the government's liberalisation programme, including the package of decisions that followed the Littlechild report — omitting to mention that the report had recommended the introduction of still further competition.

But he said it was not surprising that there had been so little by way of results in the marketplace.

Developing new equipment, building a new national network, creating new companies and convincing capitalists of the credibility of new services all took time.

"A ten-mile race is not abandoned because no runner has passed the winning post after five minutes," he added, "nor is there much point in sending another group of runners from the starting line in the hope of quickening the pace.

"In other words, the pace of the government's liberalisation policy cannot really be judged for another five or even 10 years and this is unfortunately longer than the normal political timescale."

Open govt computing projects to public debate, says the BCS

by John Kavansgh

POLITICAL parties have been challenged to open the design of big government computing projects to public debate and to put tight controls on standards of systems used in public services such as health.

The call has come from the British Computer Society's Computers and Employment Specialist Group, which also wants more technology training for schoolteachers and staff of all levels. The group has 100 regular contacts in fields ranging from universities to personnel management, union work and consultancy.

A motion passed unanimously at the group's May meeting says the forthcoming election is the most important ever for the development of employment and technology in the UK.

The rapid rate of progress demands that society can respond to technical changes, the group says.

It calls for paid leave for technology training and updating for workers at all levels. One result would be that employees would be better placed to negotiate "proper" new technology agreements to ensure technological progress is used to best effect.

It also wants "massive expansion" of the microcomputers in schools schemes, with more emphasis on teacher training and software. And it demands an end to "stop-start government support for computer science". The group says the UK has no long-term policy here.

The design of big government systems should be subject to a public enquiry before taxpayers' money is committed, the group says. And government funding of research and development should be open to public scrutiny.

"It's not always clear what the criteria are for awarding or refusing funds," said the group's secretary, Oxford University research officer Hugo Levie. "Parliament in particular should monitor this funding more closely.

"We also feel there is not enough public debate on big computing systems projects. Major public investment could be made from very narrow considerations."

Traditional and knowledge-based systems should be licensed if they are used in basic public services, the group says.

Levie added: "The present government claims to be sponsoring the development of information technology but we think the directions it has taken are not always to the advantage of the computing profession and the public. They have put computers before people."

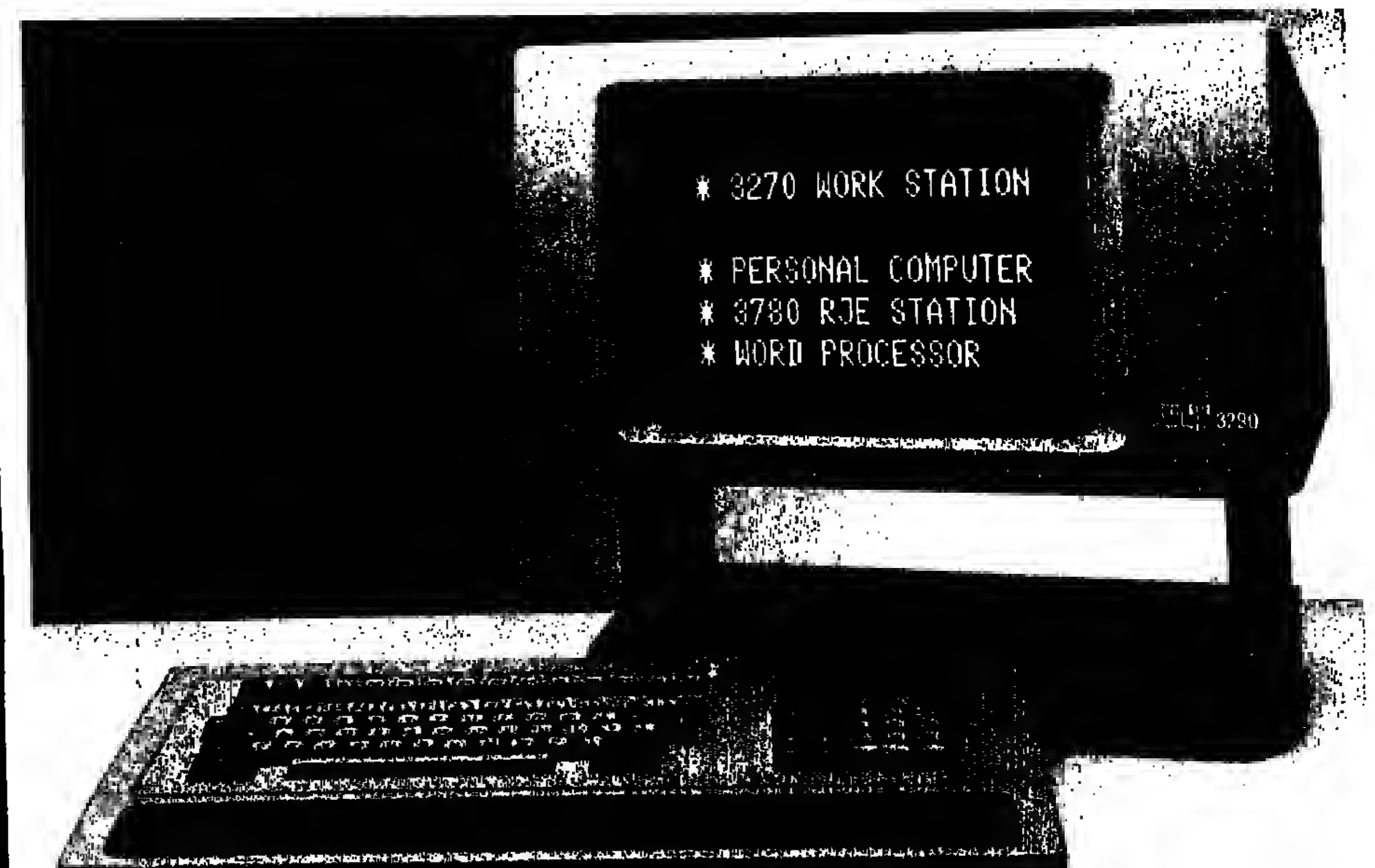
Why ICL quit chess

ICL has checkmated the UK's leading annual chess tournament by withdrawing its sponsorship after seven years. The Hastings International Chess Congress is looking for a new white knight to put up the £16,000 it needs. Last year the king of the UK computer industry paid £10,000 and Hastings Council paid the remainder.

The tournament is good for the town and for the sponsor. It attracts some 400 players and many more enthusiasts during the slack month of December. The sponsor can expect around 1,000 column inches of coverage in national and local newspapers in the UK alone.

ICL has a clear target for future sponsorship. It must be educational and related to computing. "Chess is educational but we're thinking more in terms of backing school projects," said a spokesperson for the company. "And £10,000 is quite a proportion of what we will spend. We feel it's best spent as five or six smaller chunks."

This year ICL is spending £2.5 million on a national television and national press advertising campaign. In an advertisement it can put across its own specific message, said the company.



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Hi-fi maker into home computers

by Robert Parry

JAPANESE hi-fi maker Sanyo Maruheni has pushed further into micros with a range of desk-tops, including a full 16-bit machine and more eight-bitters. And it is gearing up to enter the low-price home computer market – once things have settled down with machine specifications.

The new business machines add three more models to the range already on offer through UK distributor Logitek, giving greater storage and graphics capability.

The MC1150, built around twin Z80A processors – one handling I/O operations – doubles the disc storage of its predecessor the MBC1000 by including a second floppy drive, while the 1250 brings high resolution graphics to Sanyo's business computer range.

Both these machines use a redesigned detachable keyboard, with function keys and palm rest, which is shared by the new 16-bit MBC4050. This uses Intel's 8086 chip with a maximum of 512K RAM, running under CP/M-86.

MS-DOS, the rival to CP/M-86 in the popularity stakes for 16-bit micro operating systems, will be available soon, and both will be bundled with the hardware.

The latest of Sanyo's machines were shown to the mass of Sanyo dealers for the whole of the company's "brown goods" range – the televisions, radios, hi-fis and microwave ovens as well as office products such as micros and dictation machines.

MADDEN . . . Looking carefully at what the UK market wants.

Logitek sales director Frank Noon says he found little in the way of potential new dealers for the micros, but an encouraging interest in the hardware and software for the Sanyo dealers' own use. A package to manage television rentals, from Pace Computing in Ireland, seemed particularly popular.

But these general electronics dealers will be the initial outlets for Sanyo's home computer, which it is likely to bring out for next Christmas. "We have machines in Japan already," says computer manager Derek Madden, "but need to look carefully at what the market here wants in terms of performance and price."

A do-it-yourself IT training pack

by Nuala Moran

LOCAL government managers are being told to let their children help them learn to use information technology to increase their efficiency at work. This is one recommendation of a computer learning programme launched last week by Sir Duncan Lock, chairman of the Local Authority Management Services and Computer Committee, to help local government officers understand information technology.

Aimed at senior managers, the Applications Demonstrations Package, which runs on the BBC Acorn, has been developed through the Management Awareness Project, which was partly funded by IT82 and the Department of Industry.

In addition to improving managers' general knowledge of computers, and enabling them to assess gaps in their knowledge of IT, the package demonstrates computer techniques such as computer graphics, and gives users confidence through practical experience.

The idea is that managers take the equipment home for a couple of weeks, thus allowing them to become familiarised, without fear of making fools of themselves in front of colleagues.

This is where the children come in. Clive Holtham, chairman of the Management Awareness working party, said: "The manual advises managers to involve their children, because we found that they are simply the best teachers. Children have no inhibitions about using the equipment and are not frightened of making mistakes."

The package, including a manual which describes the features being demonstrated and provides instructions on how to run the software, costs £350. It brings the cost of the computer equipment and demonstration to about £1,000, which is equivalent to sending one manager on a two-week residential course. The package can be used to train 25 to 50 managers in year.

Commenting on the launch Lock said: "This is not designed to make managers into computer experts, but to acquaint them with the equipment available. It will also help them decide what equipment is best suited to their needs and enable them to talk to technocrats producing the machines what they want from the equipment."

He emphasised that the package was all British. "This is the only package of its type, and local government is leading the field in this sphere."

The Local Government Operational Research Unit produced the software, which can demonstrate various applications, including personnel management, graphics for scheduling vehicle routes and housing programmes.

The Management Awareness project was the centrepiece of local government's effort in IT82, and it is being continued. The theme of IT 82 was awareness, and the local government stream singled out managers as being of particular importance, and decided early on to devote its effort towards this group.

GEC wastes no time with new-style supermini

by Philip Hunter

GEC Computers has shot up in the price/performance ratings with the launch of a 32-bit supermini based on a new type of processor. The company last week announced that it had applied for a patent for the revolutionary processor based on the pipeline technique used in its just-launched Series 63 mini.

Series 63 has a four-stage pipeline which triples the speed of program execution by using time otherwise wasted in waiting for instructions or data to be fetched from memory. The first version launched simultaneously in the UK and US was 50% faster than the Vax 11/780, the top machine in Digital Equipment's Vax range, in the standard FOPR 12 benchmark.

Managing director Colin Thurston claims that pipelining is the key to the high performance.

A basic Series 63 configuration costs £80,000 with two Mbytes main memory, compared with £140,000 for the Vax 11/780.

But US electronics company Gould still has the most powerful supermini, with its top range 32/8780 executing seven million instructions a second compared with three million for the Series 63 and just 1.2 million for the Vax 11/780.

The 32/8780 costs about £150,000 for a typical configuration.

But Thurston says GEC will be launching bigger models in the 63 range later this year.

The £5 million development of Series 63 was shared by GEC Computers and A.B. Dick, the GEC Group's US subsidiary, which specialises in office automation. But all the software development was done in the UK, and the machines for all markets will be made at GEC's factory in Dunstable.

SINCLAIR . . . "Fostering new products."

Sinclair to open £2m centre

by Andrew Thomas

MULTI-MILLIONAIRE Clive Sinclair is spending two of his millions on a new research centre. Scheduled to open this autumn, the MetaLab is designed to complement the R&D activities of Sinclair Research.

"The MetaLab will act as an incubator, fostering new products from initial idea to commercial launch," says Sinclair. "Not only in computers and television, it will also open up new fields ranging from battery technology to robotics."

Negotiations for the purchase of a suitable site for the centre are under way in the Cambridge area, and the initial staff of ten is expected to grow to 40 or 50 in the first year, said a Sinclair spokesman.

Directing the MetaLab will be Richard Cutting, managing director of Cambridge Consultants, with Sinclair Research directors David Southward and Jim Westwood.

"We believe it represents a new R&D concept for the UK," says Cutting, "and will offer tremendous possibilities to those involved."

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despite the prospect [illegible] of 14 million tonnes there was no world surplus [illegible] Europe.

(continued from page 17)

terms of the most integrated product that we evaluated, this accolade must be given to Data General's CEO (Comprehensive Electronic Office). CEO integrates word processing, electronic filing, electronic mail, administrative support, calendar management and decision support, all in the one package. We were also impressed with the integration of office automation and data processing. These environments on most systems are separate and divorced from each other, but Data General has integrated them to a remarkable degree.

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SOFTWARE FILE

IBM loses grip on CICS market

IBM's share of the CICS applications development systems field fell from 84% to 48% in the past four years, according to a market survey just published in the UK.

The comparative consumer report by the Merlyn Corp of Georgia is a 200-page document based on data gathered by Focus Research Systems, Connecticut.

Focus canvassed 356 current users of applications development sysrems and 91 nrganisations which were thinking of taking them up. Eight competing approaches were studied.

A third of users of IBM's DMS system said they would not recommend it to others. And a third of them said they did not use it themselves to develop the bulk of their applications.

In 1978 only three auch CICS sulutions exiated, with IBM donminating the area. Since then Oxford Software's UFO and Cincom's Mantis have made inroads intu the IBM territory, with UFO gaining almost a quarter of the clients and Mantis establishing ao 11% foothold.

Shortage of CICS programmers is the main reason for choosing an ADS, not the hacklog of applicatinns waiting to be programmed. And lack of training available for recruits to the CICS business was the second main reason.

Users want online systems running under CICS, which means that batch systems running Cobol programs under DOS/VSE or MVS must be interfnced to CICS using tools like DMS. But the special skills and enormous amounts of programming time needed to dn this are not available, says Merlyn. And with a database management system thrown in, the dilemma becomes even more acute.

Adopting ADS technology has given data processing departments much greater ability to test and debug during design and a much improved turnaround time. Cost of developing applications has also fallen fast. But ADS has so far dooe little to reduce end-user dependence on the ceotral DP unit.

UFO and Mantis users both reported notable advances, while DMS users frequently found their approach created new problems such as design and coding limitations and inability to cope with complexities. Mantis was generally highest rated.

But it was criticised for weakness in access to database and VSAM files – Cincom says this is being put right. UFO got all-round praise, except for some loss of online performance.

Cincom's UK managing director Terry Booth said he felt the report accurately reflected the situation. "It shows that Mantis is a real language, while the others are just productivity aids," he commented.

BOOTH . . . Claims that the opposition are "Just productivity aids."

MICRO NEWS

Mattel's challenge to Sinclair is child's play

TELEVISION games merchsnt Mattel Electronics is to spread into the lucrative home computer market. It will launch a machioe into the Sinclair Spectrum arena late this month, and aims to pick off the opposition through its agressive pricing and the machine's hardware features.

Aquarius, Mattel's first home computer product, will offer colour and sound to take advantage of the company's existing Intellivision TV games programs, and come with a basic four Kbytes of RAM.

But where it will win over competitors like the Sinclair Spectrum, the Orie and the Texas Instruments small machine is its £89.95 basic price allied to the facility to take plug-in ROM cartridges to carry the software, says Mattel's UK managing director Michael Lunch.

"This is its most important feature," saya Lunch. "It means you don't have to be able tn manipulate a cassette recorder, so anyone – even the youngest children – can use it."

The initial offerings on ROM cartridges, five of which will be available at launch, will be the most successful Intellivision games, plus a spreadsheet program Finform. "Spreadsheets for home users give a very powerful and useful tool fnr a range of things from planning household expenses down to running a diary."

LUNCH . . . "Even the youngest children can use it."

Lunch reckons his Finform VisiClone will give a flexible household budget program compared to those offered by others in this part of the game. To run Finform users will need more than the basic 4K machine. The 16K RAM expansion plus the cartridge port expander will be needed as well as the Finfnrm ROM eartridge, humping the price up to just under £240.

Show sheds light on optical discs

OPTICAL discs are at last beginning to get off the ground for archival storage. At the National Computer Conference in California, there was a handful of products on show or being talked about, with real live systems likely to appear in the US around the beginning of next year and earlier in Japan.

As with many of the new high capacity memory technologies, Japanese companies are well to the fore. At the NCC the only machines present were from Japan – even if they were not fully functional.

The main US contender at the show, Storage Teelnnology, only had a story board, though claimed the equipment had been shown at its recent board of directors meeting.

Panasonic had the most complete system on show, but was vague as to when it would be available as a working system to customers. The optical disc store was integrsied into a complete document file system, tying together optical discs storing up to 10,000 sheets of A4 document per disc with a scanner/printer unit for getting the information into and out of the discs.

The discs record data on a tellurium oxide thin film, protected by acrylic layers, with a semiconductor laser. The eight-inch discs are write only: data can be put on, through the scanner unit from existing documents or via the keyboard, but cannot be erased or altered subsequently. The system is only useful for archivsl storage.

All parts of the system are made within Panasonic, and the complete optical document file system, with links to facsimile lines for transmission of documents, costs a hefty $60,000 to $70,000. The recorder alone will cost about half that amount, while the blank discs will cost about $750 each.

This cost per disc is very high compared to the other Japanese machine on show (if not actually working) at NCC. NEC's unit was spinning its discs, and flashing the odd light emitting diode, but the controller subsystem needed to link the disc store with a computer was still in Japan. "It works in Tokyo," assured a spokesman on the stand.

The NEC unit uses discs developed by US company 3M in cooperation with NEC, and these will be priced as low as $100 a disc in volume orders. Each LP-sized disc carries 1.3 gigabytes of data – around 15,000 to 20,000 A4 documents, estimates NEC – again for archival use only, as the discs are classified "write once, read forever" by both NEC and 3M.

The $15,000 machine should hit the US during the first quarter of 1984, October or November of this year in Japan, and NEC marketing forecasts look to sales of 5,000 units over the next three years.

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The independent show for the independent user

HP signs up CP/M for its 16-bit micro

DIGITAL Research has had a boost from Hewlett-Packard in its bitter clash with Microsoft to gain the upper hand in the 16-bit micro world. HP has signed a deal with Digital to put its CP/M-68K operating system on the HP Series 200 machines.

"CP/M-68K adds another dimension to the 200," said HP's third-party software manager Stacey Plemmons. "The 200 is not just an engineering computer but a powerful workstation which will offer growth for CP/M users outgrowing their eight-bit and IBM PCs."

HP admits that it is not well known in the micro market as yet. But Plemmons said the UK subsidiary would start a big push on the 200 very soon, including an attack on the IBM Personal Computer market. It is to aim at big companies, using its own sales force, and is looking to dealers to sell to small businesses.

"CP/M gives us the applications software that is mandatory in the business systems market," said Plemmons.

Digital believes there are nearly 4,000 packages written for machines running under CP/M. Paul Bailey, Digital's director of European operations, said Hewlett-Packard was the biggest company so far to announce it was using CP/M-68K. The system would be strengthened in September when Digital brought in its CBasic and Pascal languages on to it, he added.

HP's backing for Digital comes at a time when competition with operating system rival Microsoft is turning ugly. Only this month Microsoft's claim that UK Sirius distributor ACT had stopped supporting CP/M-86 was angrily denied by ACT and Digital.

But probably as significant as this conflict is HP's decision to introduce the Unix operating system on the 200 machine in the near future. CP/M has woo further backing from Xerox, which has chosen CP/M and CP/M-86 for its 16/8 16-bit and eight-bit personal computer.

Package eases tax headaches

A CORPORATION tax software package – claimed to be the first of its kind available in this country – was introduced last week by a computing publishing consulting triad.

The three are Oyez Longman Publishing, accountants Blackstone Franks Smith and Quantec Systems and Software of London. Their package, Taxbase, is being launched on a range of micros, including IBM, Sirius, Xerox, Osborne and Olivetti.

Quantec managing director Robin Cooke-Hurle said a lot of smaller companies had looked on corporation tax as a "sword of Damocles hanging over them". Now they would be able to optimise their choice of options under the tax system, he said. And the Inland Revenue has invited Quantec to comment on its trial project to self-assessment of corporation tax.

Quantec is also looking at the possibility of putting Taxbase on Apple hardware.

Courtroom system to get rewrite

THE police and magistrates court system PAMS is to be rewritten over the next two years at a cost of £250,000.

The system's user group, which represents 10 current installations and three more on order, has commissioned the authors, Sound Techniques of Suffolk, to undertake the work. The 1975 system ran on Multibus minis from ABS Computers of Woking and Brighton. But its replacement will be on ABS' new MX machines and will be in the firm's own language Simple instead of Assembler.

User group chairman Chris Harrison said the workload had increased dramatically over the past decade and PAMS, though excellent, could no longer cope with the volume. Response time was suffering and the system could not be accessed by as many users as necessary.

The latest version, being carried out by a team of six, will complete its first stage in January next year and be concluded in March 1985.

Software File is compiled by George Black

Symtec moves into micro retail trade

by Andrew Thomas

A SOUTHAMPTON software house has moved into the hardware retailing market by opeoing two mieroeomputer shops.

Symtec Systems, which also has an OEM agreement with DEC, launched its Computerway scheme last week with stores in Southampton and Guildford.

Computer retailing giant Computerland started its UK operations in Southamptoo six months ago, and plans to open 10 more by the end of the year.

Computerway sales director Malcolm Lewis-Fry claims that the initial response has been good.

"It's been fantastic, actually," he saya. "We're well on target in our first week. It's a whole new way of selling – you never know who's going to walk through the door."

In additioo to the Commodore, Oric and Epson machines aimed at the borne market, Computerway also sells Sirius, Osborne and Olivetti mieros, and is currently negotiating with IBM and Digital Equipment for their personal computers.

Lewis-Fry says more shops are oo the way. "We doo't want to over-stretch ourselves," he says. "Too many people have gooe under by doing that, but there will be more stores in the future. At the moment were looking at an area stretching North to the Midlands."

'Centre of excellence'

BRISTOL-based systems integratioo company Basys Computers has set itself up as an independent UK "centre of excellence" for systems built around the Motorola 68000 mieroprocessor. As well as supplying 68000 hardware and software, Basys provides a technical consultancy service, encompassing feasibility studies, project estimation, software design and hardware evaluation.

"Our forte is computer solutioos for both commercial and scientific users," says marketing director Mike Townsend, "and with the power and growiog software support now available on the 68000 this was the obvious route to take."

The hardware supplied by the company comes from Sage, via Bristol-based distributor TDI, and Wicat, through Software Sciences. This line-up gives a range of well-thought-of machines starting at about £3,000, which give "unequivocally the best performance per pound on the market," says Townsend.

But as well as the 68000 systems design service and the hardware and software offerings, Basys has started a "cash-and-carry" exercise in the Bristol area selling the eight-bit Globe CP/M system bundled with Wordstar and Mailmerge plus a printer for £3,000.

The 10 engineers at Basys all come from primarily software backgrounds, says Townsend, who was until recently with London-based 68000 Unix computer builder Bleasdale Computers.

Fast chips race is on (again)

THE season of fast chips has arrived again. Japanese companies are busily claiming firsts and fastests with Josephsoo junction devices, while in the US Hughes Aircraft Company has produced a CMOS silicon on sapphire chip under the US Defence Department very high speed integrated circuit (VHSIC) programme.

The Japanese government Electrotechnical Laboratory at Tsukuba has built a Josephson junction (JJ) logic element switching at 7 picoseconds – millionths of millionths of seconds – which it claims beats the previous records of IBM at 13ps and NEC at 10.8ps. The speed per gate was arrived at through the 70ps it took a signal to travel through an array of 10 gates.

Meanwhile NTT has put together a prototype JJ one kilobyte RAM, incorporating around 10,000 JJ elements with I/O control circuits on a single small circuit board.

The Hughes device crams 72,000 transistors on the chip, and operates at 80 MHz. The CMOS silicon on sapphire technology used is inherently hardened against radiation and avoids the liquid helium cooling needed for JJ devices to work.

Micro News is compiled by Robert Parry

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*UNIX is a trademark of Bell Laboratories
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COMPANY NEWS

Canadians in £1m Midlands merger

WILLIAMS . . . Combining skills.

AMBITIOUS Canadian software company Sydney Development has acquired a £1 million stake in UK firm SP Support. The stake, which effectively merges Midlands-based SP Support and Sydney's UK operation in London, was paid for entirely in shares issued by the Canadian company.

According to Tarnic Williams, formerly with IBM, and now Sydney's chief executive, the reason for the merger was the complementary nature of the two companies' products.

Sydney, Williams says, has focused on "vertical markets", but SP has developed what he called "cross-country products in ledgers, inventory management, order entry and a full range of financial applications."

Williams says that the combination of skills will yield far greater potential than either organisation could realise on its own. SP is hoping to use the Sydney connection to get into export markets, particularly in the US and Canada where Sydney has a string of offices.

According to Mike Collins, one of SP's founders, "The company had gone as far as it could with minimal marketing effort and no serious effort to penetrate export markets."

SP employs about 70 people and the merger fits in with Sydney's long-term strategy which is based on growth by merger, using the energetic and ambitious fund-raising techniques Williams has pioneered in Canada.

Sydney Development was founded in 1978 by Williams and had turnover of $4.8 million last year, a 750% rise on the previous year. Williams is forecasting an increase in turnover to $9 million this year, based on the worldwide expansion of the company.

Although Sydney has a primarily financial orientation, the company has produced a number of software products which have proved popular both here and in North America.

These include Connect II, a family of packages that provide an improved interface with IBM project management systems like PROJACS and PMSIV. The original packages are now complemented by Sydney's own project management System Contrack for IBM users and Track 50 for Prime users.

Company News is compiled by Kevin Cahill.

City impressed by turnabout in ICL's results

ICL's half-year results have evoked favourable comments in the City, where the company has recently raised a great deal of money.

The worst of ICL's financial problems seem to be over, now it has declared an after-tax profit of £12.5 million for the first half of 1982/83, following a profitable second half in 81/82. Based on a trading profit of £22.3 million on turnover of £401 million, this is a reversal of the 1981/82 first-half results, when the company made a £13 million loss.

Turnover was 11% up on the £335 million of the same period in 1981/82, after deducting £13 million due to favourable currency movement and £17 million from the accounts of Computer Leasing, which ICL acquired last year.

Neil Barton, computer industry analyst at stockbrokers Henry Cooke Lumsden, says the results are "very encouraging", and that growth of sales in the distributed systems area, which accounted for nearly 30% of turnover, shows that concentration in that area is paying off. Barton says that the willingness of ICL's chairman, Sir Christophor Laidlaw, to express his hopes for the second half of the year (he commented cautiously that the results would be "creditable"), is a good sign. Barton still forecasts profits for the year of £60 million.

According to Laidlaw, the networked product line, which is the centrepiece of the company's strategy for the future, is progressing satisfactorily. ICL's determination to stick to its long-term plan has persuaded Ray Bowden, senior research analyst at stockbrokers Fielding Newson Smith, to stick firmly to the buy recommendation he made recently on ICL shares.

Bowden says he feels confident about ICL's future now that it is well established on its strategic course. Bowden originally forecast profit for the year at £50 million; he now suggests £45-50 million, because of fears that sterling will strengthen against the dollar.

Speculation in the US is that, if the Conservatives win the election, sterling could go as high as $2.00, and this could harm ICL, because it depends on dollar income from its US operation.

The computer industry analyst Michael Bean at brokers Henderson Crosthwaite has also cut his forecast for the full year back from £50 million to £45 million for the same reason.

Nick Mesham, computer industry analyst at stockbrokers Laurie Milbank, also says that he is very encouraged. He describes ICL as having been briskly "rescued, rationalised and returned to profit".

Can ICL keep it up? Mesham answers with an emphatic "yes", but says there will be a fight.

He describes ICL's financial situation as "sound". The fund-raising is complete and a sound marketing and product strategy is in place, he says. He also notes that overall impression from the Hambrecht and Quist financing conference held in San Francisco two weeks ago was that US companies operating in the networked area are having an unprecedented success. This, Mesham says, amounts to a strong endorsement of the overall strategy of ICL's managing director Robb Wilmot.

In terms of debt, ICL is now in a a better position than it was before the collapse. Borrowings are down to £59 million, from £180 million last September. The £20 million of cumulative preference shares issued by the banks to help ICL's balance sheet during the rescue has been paid back and Laidlaw reported that the £7.4 million in interest on the preference shares had been paid on April 5.

LAIDLAW . . . Cautiously optimistic.

Slowdown in exports hits Toshiba

TOSHIBA, one of Japan's more aggressive electronics companies which is beginning to enter world markets in both semiconductors and microcomputers, reported a slight profit slide last year.

For the year ended March 31, the company's consolidated profits were $197.3 million, 2.4% down on the previous year's $202 million.

Toshiba blamed a slowdown in exports of heavy equipment, while noting that sales of electronics goods by the company rose 13% during the year.

Mitsubishi record

MITSUBISHI Electric, soon expected to be one of Japan's leading producers of 256K chips, has announced record sales and profits. Despite a slowdown in the sale of heavy goods due to the recession, the company declared profits of $214 million, a 5.6% increase on last year.

$5bn fine threat

AT&T, struggling with the biggest divestiture in US corporate history, has told a US judge that part of the unscrambling will cost it over $4.7 billion in capital for injection into its new subsidiary American Bell. The company is also threatened with a $5bn fine for past activities, which it says should be levied among the hived-off subsidiaries, if the fine is enforced.

Xerox flat profits

XEROX, once the darling of the US stock market, is forecasting flat profits this year, but an improvement in 1984. Last year the company had a 29% drop in profits, from $598.2 million in 1981 to $423.7 million.

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The Digilog DLM is now in its fifth generation. Yet it is still the lowest-priced data line monitor/analyser with anything like its performance.

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Two more firms go to market

TWO more young computer companies with healthy financial profiles last week announced their entry to the Unlisted Securities Market – the inexpensive way into the Stock Exchange. Punters can now get their hands on 380,000 shares at 60p each in the commercial systems consultancy MMT Computing.

And computer terminal maker Cifer Systems, which made a profit of £851,000 on turnover of £5.3 million for the year ended September 1982, is hoping to raise over £2 million on the USM.

The MMT placing will not raise any money for the company, all the shares being sold by existing holders. Founder directors Michael Tilbrook and Dennis Thompson are selling 332,000 shares between them.

At the placing price the company is worth £1.2 million, and 72% of the shares are being retained by the directors. But Peter Ward, of brokers Quilter Goodison, who are handling the placing, says that the reason for going to the market now is to get a good hold before more computer companies come for cash in the next year or two.

MMT made £143,000 on sales of £743,000 last year, and is forecasting pre-tax profit of £180,000 for year ending August 1983. The price/earnings ratio is 13.9, lower than for many of the 25 computer companies on the USM. The directors intend to pay a dividend of 1.53p a share, a yield of 4% at the placing price.

MMT's biggest client is Marks & Spencer, which accounts for nearly half of turnover.

SHARES TABLE

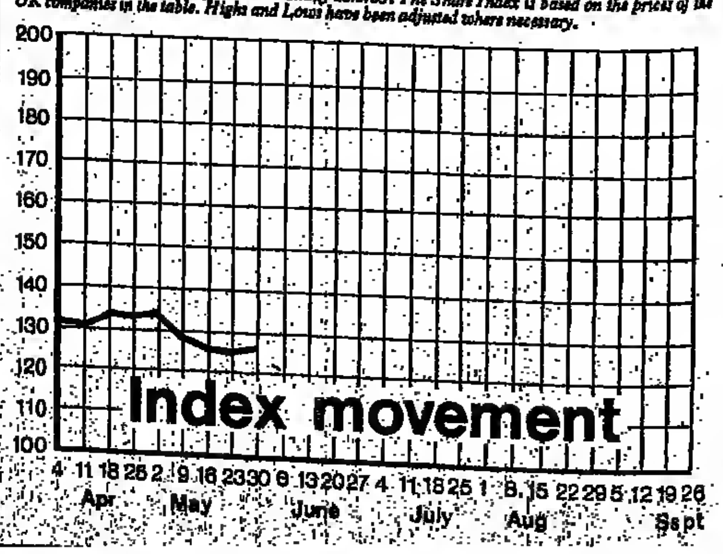
The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 24/5/83 Index 128.44 Change +1.25

Pence 1983 High	Pence 1983 Low	London Stock Exchange Stock	Pence Price	Pence C'nge
409	240	ACT (App Com) (25p)	363	+3
230	178	BOC Intl (25p)	207	-5
82	41	B. Boy Kent (25p)	81	-1
183	124	Chubb (20p)	167	–
179	120	Cole Group (25p)	120	-4
225	152	CASE (20p)	200	+7
665	640	De La Rue (25p)	660	-2
323	284	Extel (25p)	300	-7
635	411	Ferranti (50p)	633	+4
247	182	GEC (5p)	215	-4
82	67	ICL (25p)	72	+4
58	41	Kalamazoo (10p)	51	-1
370	275	Kode Int (25p)	345	-5
447	270	Memec (10p)	447	+2
190	144	Muirhead (25p)	163	-2
646	458	N'market (1981) ($0.05)	616	-4
2600	967	Norsk Data	2298	-157
320	208	Office & Elect (25p)	206	-2
1125	710	Philips Lamp (Fl 10)	1063	+25
647	536	Plessey (50p)	646	-2
50	32	Quest Auto (10p)	33	+1
584	418	Racal Elect (25p)	487	-10
354	223	Rediffusion (25p)	340	–
282	225	Star Comp (10p)	230	–
380	278	Systems Des (10p)	378	+3
625	418	Thorn-EMI (25p)	613	-15
177	135	UCAT (50p)	146	-3
		Unlisted Securities Market		
108	75	Bus Comp (10p)	100	–
218	148	Consult (C&F) (10p)	190	–
180	158	Inv'europe Tech (20p)	178	–
64	27	J.S.D.Comp (5p)	44	-2
235	160	Memory Comp (R10p)	220	+5
310	205	Micro Bus (10p)	310	+3
288	255	Micro Focus (10p)	288	+15
388	318	Microgen (10p)	340	–
200	135	Miles 33 (10p)	183	–
217	158	NMW (C1)	192	+8
120	81	Rolfe & Nolan (10p)	100	+3
167	110	ScanData (10p)	170	–
90	63	Trident Comp (10p)	69	–
69	56	Zygal Dyn (5p)	60	–

$ 1983 High	$ 1983 Low	US Stock	$ Price	$ C'nge
60	30¼	Amdahl	49¾	+½
57½	29¼	Apple Inc	57½	+3½
60	34¾	Auto Data Pro	39	+¼
52	43¼	Burroughs	52	+1
16	11¼	Comp Auto	13½	–
23	17¼	Comp Sciences	18	–
12	8½	Comshare	10¾	–
56	38¾	Control Data	56	+7½
49¼	37¼	Cray Research	49½	+3
67½	41	Data General	59¾	+3
24½	18¼	Datapoint	20	-¼
127¾	96½	Digital Equip	113¼	+3¾
55	47	Elec Data Sys	64¼	-¼
12	8¼	Gen Automation	11¼	–
39½	19¾	Gould	39¾	-½
51	38¼	Harris	49½	[illegible] ¾
88½	74	Hewlett-Packard	88½	+2¼
122½	88	Honeywell	119	+3½
58	40¼	Intel	58	+3½
115¾	95½	IBM	112¾	+1¾
68½	64¼	Litton Ind	63¾	-1¼
17¾	14½	MDS (Mohawk D)	14½	-¼
30¼	19	MSA (Mgmnt Sci)	30	–
15½	13¼	Mngmnt Assist	15	–
14½	9½	Modular	14	+½
120½	84½	Motorola	120½	+4¾
39¾	26¼	National Semi	39¾	+1¾
124	87½	NCR	124	+5½
32	24	Perkin-Elmer	29½	+2
44¼	28¼	Prime	30½	+1¼
54	44½	Raytheon	50¾	-1
83¼	28¼	Signal	82½	+2¼
38½	33½	Sperry Corp	36¼	+¼
24½	19	Storage Tech	23	+½
31¾	24¾	Tandem	31¾	+¾
62¼	50¼	Tandy	62¼	+1½
171	123¼	Texas Inst	165	+5½
25	15	Tymshare	22¼	-½
39¾	31½	Wang Lab B	38¾	+1
14½	9½	Wyly	14½	+½

The table shows the closing prices on Monday 23/5/83. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



The one and only R.

Cullinet's relational database for IBM computers. It's called IDMS/R.

IDMS/R is the single solution to the two sided problem of providing useful database applications for both end users and production tasks.

This is how it works:

As a true relational database, it allows you to select data from separate and unrelated files; join it, then project it in ways that make it possible for you to handle end user applications and unstructured requests for information quickly, directly and intelligently.

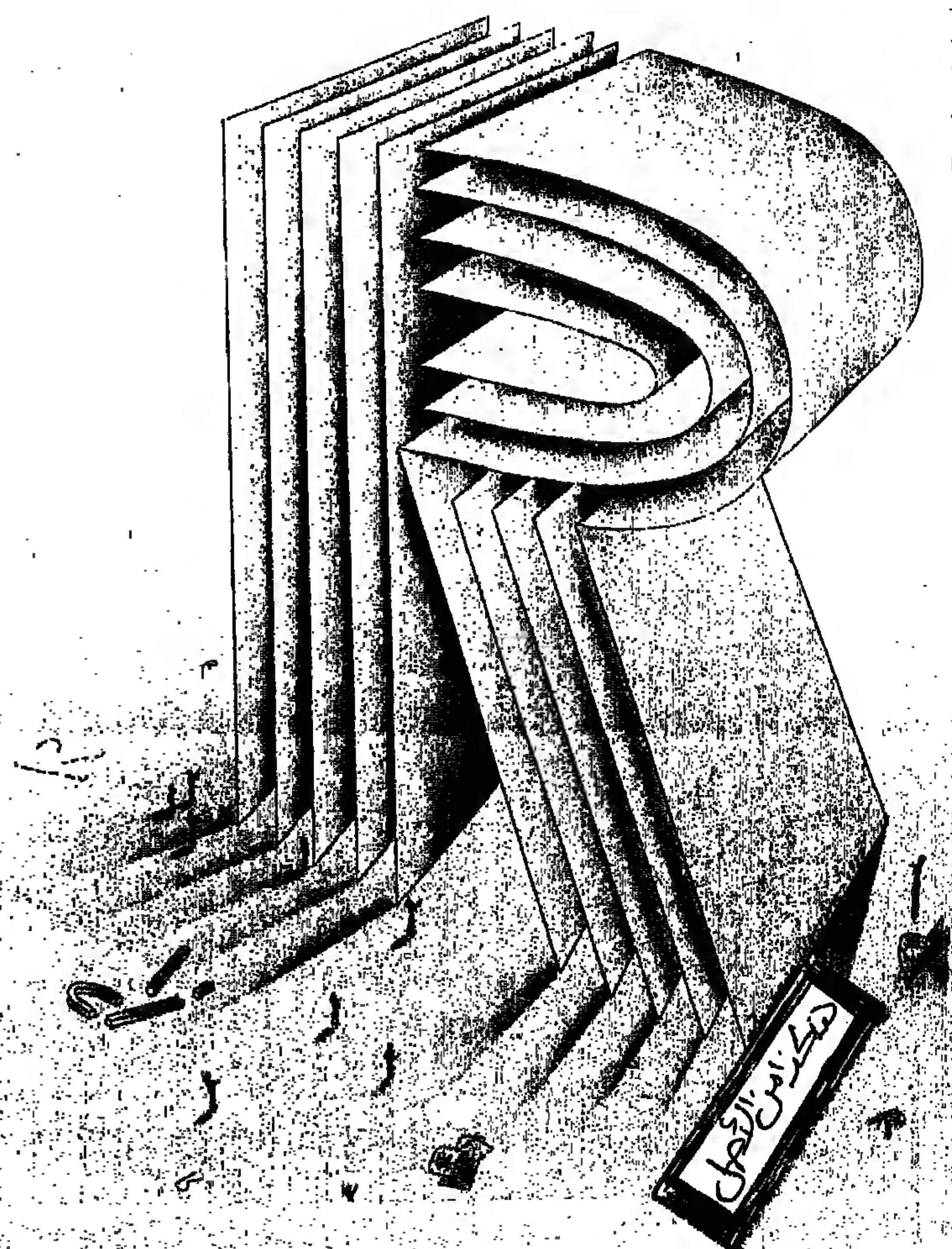
As a superset of Cullinet's proven network database, IDMS/R allows you to handle high volume, production applications with the network technology best suited for the job. It's this unique marriage of architectures that makes Cullinet's relational database stand apart.

Where others have tried to propose relational or psuedo-relational components that exist separately from the production database, Cullinet's is the only one that lets both work together. Thus serving the whole corporation by serving all of the needs within it.

IDMS/R.

To get everything out of the database that you've put into it, the answer is software.

And software is Cullinet.



Cullinet

Cullinet Software Ltd, Cullinet House, The Broadway, Stanmore, Middlesex HA7 4DO. Telephone: 01-954 7333. Telex: 896901.

PLATFORM

Martin Maynard is managing director of Audiogenic.

Time for the home computer manufacturers to wake up to software

IT is time home computer manufacturers started to appreciate the overriding importance of independent software companies.

It took the business computer market several years to realise that it was the software that sold their machines, yet the home computer companies have chosen to ignore such obvious facts.

A home computer is uf absolutely no use without software. Games, even the first generation "Space Invaders" were the sole reason why sales of home machines took off: and games are still the major excuse for buying n home computer.

More recently, gaines have been superseded to some extent by home utilities and business programs. Existing home computer users are adding to their software library and extending the use of their machines. However, this generation of software is also creating s vast new marketplace for the machines.

If nothing else, the home user now has justification for buying a computer; the business and commercial user now has access to an extremely low-cost business automation system.

It is the availability and popularity of the software that dictates the success or failure of a home computer. If software manufacturers decide not to support a new machine, what chance has that machine in the market?

To take just one example: the main reason why the Commodore Vic has been so successful (there are now 50,000 of them in the UK alone), is because immediately the machine was launched, companies began both to downgrade proven Pet programs and to develop specific programs.

Both cost a great deal of money. Both are profitable if initial funding can be assured.

How many home computer manufacturers have invested in a software house development project from the start? The risks are all on the side of the software house.

It is only once a program has been developed and is shown to be commercially successful that the home computer manufacturer shows an interest in acquiring at least part of the product.

Instead of appreciating the efforts of software houses; instead of encouraging development and marketing; instead of co-operating by giving details of their way to make life as difficult as possible for software houses.

Any serious software house will already have invested in marketing, promotion and distribution to ensure the success of the product. Advertisements, point of sale material, editorial coverage and product reviews alone adequately promote the product. Of what use is the minute promotion gained from the manufacturer?

In order to run the software, the buyer must have a computer. If the software is of sufficient interest, the potential user will purchase a machine on which to run it. Are software houses therefore entitled to expect a percentage of the sale?

Why can't software houses start their own "approved hardware" scheme whereby the manufacturers, if considered responsible enough to justify the development of software for their machines, forfeit a percentage of their income? This income could accumulate, being used to promote complete systems to the market.

Further, it could aid the funding of systems in education, etc. This approach would benefit all concerned.

Some hardware manufacturers have been promoting their home computers on the basis of the software alone. This software is provided by independent companies.

Which of the two more creates a market for the sales of home computers?

Martin Maynard

Instead of appreciating the efforts of the software houses; instead of encouraging development and marketing; instead of co-operating by giving details of new releases, manufacturers are going out of their way to make life as difficult as possible for software houses.

SPECIAL REVIEW

Scourge of America's scientific conscience

THE professor of computer science at Stamford University, Ed Feigenbaum, is rapidly becoming the scourge of America's scientific conscience as he berates the country for its lack of interest in the next generation of computers.

He mounts his criticism with elegance, passion and a certain amount of sideways humour in his latest book, *The Fifth Generation,** just published by Addison Wesley in the US.

But he does not restrict his criticism to the US alone. In a chapter headed "There Always was an England," he recounts

FEIGENBAUM . . . . "Nothing for a middle class shopkeeper to get into".

by Kevin Cahill

how, almost as usual, the UK got there first with what he sees to be the key to Japan's plans to lead the world in the next generation of computer systems.

As Feigenbaum sees it, the most important aspect of the Japanese project to build the computers of the future is artificial intelligence, and he credits Alan Turing with the first perception that computers might be capable of intelligent thought.

Turing's concepts, far ahead of their time as was much of his work, were framed in the paper "Intelligent Machinery" which he produced during a one-year sabbatical from Cambridge in 1947.

Turing followed the first paper with an even more important one called "Computing Machinery and Intelligence," which included the now famous Turing Test.

For those who have forgotten it, the Turing test says that if, in remote dialogue by teletype with two sources, a human operator cannot tell which is the machine and which is the human, the machine can be said to exhibit intelligence.

From that auspicious beginning the next two decades saw a flowering of AI thought, mostly at Edinburgh under Donald Michie.

In 1973, however, the Science Research Council issued a report written by Sir James Lighthill, which purported to "evaluate" artificial intelligence.

According to Lighthill, the work called AI was sadly wanting at best, and bordering on charlatanism at worst. The outcome of the Lighthill report, which appeared just as one of the less well known but most successful AI projects of all was getting under way in the General Infirmary in Leeds under Dr Tim de Dombal, was that the team was dismantled and its members scattered.

At the time this happened Michie's staff were deeply into robotics and it is worth quoting Feigenbaum in full:

"As a consequence of the Lighthill report, artificial intelligence sustained a body blow in Great Britain and in Australia as well. The superb robotics project at Edinburgh was largely dismantled and many of its young and able researchers scattered . . . Since robotics is about to play a significant role in Japan's soaring productivity advances, Lighthill report was a costly one to a nation whose industrial productivity is a grim joke."

Feigenbaum, who wrote a book before the Alvey report was finally accepted by the government, and funds from within DoI, DES and MoD budgets made available for it, describes the inaction of the team the UK sent to the fifth generation conference in Japan in 1982 as one of "great alarm."

He also notes, with scathing asides, that the team the UK sent did not include two of the most renowned International AI pioneers, Donald Michie and Alain d'Agapayeff.

Feigenbaum's conclusions about the UK chances in the fifth generation age are best summed up as "Government support for research and development in the UK is relatively slight, and what little there is has gone disproportionately to physics, probably because physics has traditionally dominated the committees that control the British government allocation of funds. Physics can be considered the queen of science – a glorious game to play – but nothing for a middle class shopkeeper, to get into. Nevertheless Britain has stubbornly kept up appearances, buying polo ponies when the family car was broken down, the shop needed new inventory, and Mum new uppers. It is a sad fact that people with limited funds must make choices and Britain's haven't always been wise."

Strong stuff indeed – and there is plenty more in the same vein directed at both the UK, the US and Europe in a book which goes a long way to explain just why the Japanese fifth generation project is so important, and what it is.

The Fifth Generation. Ed Feigenbaum, Addison, Wesley. $15.50.

DOWNTIME

How are fallen mighty?

MIGHTY US minimaker Prime has come in for a lot of bad press following its takeover of CAD software house Compeda.

But Prime has humbler beginnings. Recent speculation that the company was also after the Cambridge CAD centre to add to its list of trophies can be seen in a new light following a delve into its archives.

It would appear that in 1970 Prime sold less than 100 systems, and 30 of those went to the Cambridge CAD centre, an erstwhile senior CAD centre person confided to me last week.

"Prime was bankrupt," he said. "If we hadn't bought those 30 systems, they'd have gone to the wall. In fact we wanted to buy Prime out. We had the money, but the powers-that-be stopped us."

Last year, Prime turned over $435 million. What remarkable foresight our powers-that-be have.

A load of . . .

THOSE Gallic chappies on the other side of the channel have kindly informed us of the new man at the top at Compagnie des Machines Bull.

It would appear that Bull has been split into separate divisions: Bull-Systemes, Bull-SEMS, Bull-Peripheriques, and Bull-Transac.

This information is sent to us by the Press office in Paris. Does it, we wondered, follow the naming convention of the rest of the group, and rejoice in the name Bull-xxx?

In the swim

MORE extreme silliness from the NCC. Microsoft featured a yacht in its official ceremony.

Not all that silly, you may think. But consider then the location of the yacht – in a swimming pool.

Nine hours were spent craning the fibreglass vessel into the pool. When this task was accomplished, the guests weren't allowed on board, but had the opportunity of admiring the Microsoft launch from the poolside.

That registers 11 out of ten on my scale of silliness.

Counter attraction

MY American correspondent tells me that the Apple stand at the NCC was drawing the crowds. Apple will not doubt see this as evidence of growing interest in its new baby. But it could also have something to do with the fact that it was handing out 20,000 free tickets to Disneyland.

And Lisa scored another first. It is probably the first micro to play a central part in a TV sitcom. In *The New Odd Couple* Danny buys Ralph a Lisa for his birthday.

Robbo by any other name . . .

ACCORDING to another weekly computer paper, that doyen of the dynamic young executive R. Wilmot has been promoted. The secret move came last week when the paper revealed that Robbo had become chairman of ICL.

This must be a mistake, I thought. But no. Not only were the words "Robb Wilmot" preceded by "chairman" in the copy; the startling three words also appeared beneath a picture of the bespectacled boy wonder.

What has happened to Chris Laidlaw, Wilmot's predecessor? Has the chairmanship? Will Robbo get another Range Rover?

I think we should be told.

Sens(or)less slaughter

JUST when you thought it was safe to go back into the Total Exclusion Zone . . . yep, its another Falklands story.

Latest high-tech firm to fund on the Kill an Argie and Win a Metro bandwagon is Dorman Smith Switchgear, better known for the manufacture of electrical things for power stations. DSS is flogging sensors to the Ministry of Defence for use with the Rapier anti-aircraft missile.

Seems to me that they should be selling the things to the Argies. They're the ones who'll want to know if they've been hit by one of our missiles.

Chad

10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 31, 1973: A merger between CII and the computer divisions of Siemens and Philips was reported to be imminent . . . . ICL presented an experiment in Parliament on computer facilities for MPs . . . . The Department of the Environment ordered six 32-key keystation systems from Redifon for the national car licensing centre at Swansea . . .

Liveware File

by Dan

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, June 2, 1983

Japanese jolt for UK software

THE UK holds the trump card in one ares of information technology: software expertise. Ot does it?

Last week the news came that two large US software companies, Management Science America and Pansophic, are planning to sell Japanese products.

It is not the first time the Japanese have tried to export their software to the West. At the end of 1981 it was reported that Hitachi was going to distribute its system software in the US through a distribution agreement with New Jersey-based Syncsort. Not much has been heard of that deal since, though it is generally agreed that the Japanese are weak in application software, which is where the real money lics.

A report published about the same time as the Hitachi/Syncsort link-up by the International Data Corp (IDC), a research group, suggested that the Japanese were capable of resolving their software deficiencies by the mid-1980s. That MSA and Pansophic hope to market Japanese software in the UK and the US by next year is a sign that the IDC prediction may hold true.

The arrival of Japanese application packages in the West should not in itself send UK software companies scuttling to the trenches. Neither MSA nor Pansophic went to Japan to look for software they couldn't get elsewhere. A deal with the Japanese marketing company Asishuto is a natural by-product of the arrangement MSA and Pansophic already had with this firm to distribute their software in Japan.

But, if Japan is ready to produce application software for export, there is no room for complacency.

The UK certainly holds the lead in software expertise, but only if it translates its excellence in research into marketable products. Edward Feigenbaum, professor of computer science at Stanford University, says in a book reviewed on the facing page that the UK has seldom capitalised on many of its innovative ideas. His book, *The Fifth Generation*, is well worth quoting:

". . . Britain has stubbornly kept up appearances, buying polo ponies when the family car was broken down, the shop needed new inventory, and Mum new uppers. It is a sad fact that people with limited funds must make choices and Britain's haven't always been wise."

Birth of a mainframe

THE birth of a new mainframe series, like the birth of a new planet, is an occasion for some rejoicing.

After all, the computer industry only recently discovered that small is beautiful, having spent most of its 30 years of turbulent existence wrapped up in the myth, some would even say the magic, of the mainframe.

The birth we refer to is the new Trilogy machine, which is coming down from the stable which gave the industry the IBM 360, the Amdahl Corp 470 and which was a profound influence on at least two major Japanese mainframe ranges, those from Fujitsu and Hitachi.

The Trilogy machine, which will be defined in detail and announced early next year, will be little bigger than the average family wardrobe, and even with its cooling unit, will fit in the back of an average 1.5-ton truck.

Contrast this new machine with the first Atlas from Ferranti. In its time, 1963, it was the world's largest and most powerful computer. The Atlas had 48K of main memory, ran at 1 mips and it took 19 furniture vans to move it to the Nuclear Research Institute at Harwell, where it took two months to install and cost £3 million.

The Trilogy machine will probably arrive in a van, be plugged in and handed over within hours. It will run 30-plus mips and cost £3 to £3.5 million.

The equivalent cost of the Atlas 1 in today's money is £20 million.

What the Trilogy machine shows is that the industry's best are still driving up the mips, driving down the price in real terms and proving clearly that in terms of size reduction no one has yet spotted the final horizon of miniaturisation.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Richard Bowden of Edinburgh, who wins £5.

Today the good jobs and salaries are in the fast moving field of computers. Fine, you may think, if you are a whizz at maths. But here's the good news. If you can knit or drive you could get into computing too.

Company

LETTERS

Disputed conversation

I WAS astonished to see the article by John Kavanagh (*Computer Weekly*, May 19) concerning my company, Systems Plus and Vector Graphic. When I was called I naturally acknowledged, when he raised the matter, that Vector had undergone management changes and posted a loss recently. However, the quote attributed to me certainly does not conform to my recollection of the ensuing conversation, nor could it be further from presenting a true impression of my views.

Systems Plus had enjoyed a long and profitable relationship with Vector and we have consistently found its equipment to be of superior quality. Vector-based systems have been the backbone of our business and, although we are diversifying into other makes of hardware, we could never have achieved results to make this possible without the Vector systems that Systems Plus have sold to date.

Vector Equipment remains a significant part of our future plans and this week we have been demonstrating the Linc Local Area Network to existing and potential customers.

ROBERT S. BAILES
Systems Plus Ltd,

After examining his notes on the conversation with Robert Bailes, John Kavanagh stands by the quotes contained in the original story – Editor.

Exclusive distributors

IN an article on the People page (*Computer Weekly*, April 21) on Electrohome Products, a photograph of video data equipment was published. Among those products shown prominently in the foreground was an Electrohome Monochrome Video Projector.

It is possible that these pictures together with the article may have caused some confusion in the minds of your readers.

I should be most grateful if you could clarify that we alone, as exclusive distributors for the UK of the Electrohome family of projector products enjoy the direct support and confidence of Electrohome.

CLIVE D. YOUNG
Managing director
Powerhouse Enterprises
Ringwood, Hants

'Unfounded allegation'

MY letter (*Computer Weekly*, April 21) was provoked by a letter from Target Computer Group which contained a number of allegations.

If the managing director of Target (*Computer Weekly*, May 19) does not want to enter into a discussion he should not initiate the arguments.

IMS did not "fail to turn up" as admitted by Target; their allegation was therefore unfounded. Further, the system overview supplied by Target states that where "an employer operates its own sick pay scheme any sick pay in excess of SSP is not subject to NI or tax". There is no reference to an insured scheme which would be exempt from NI or PAYE.

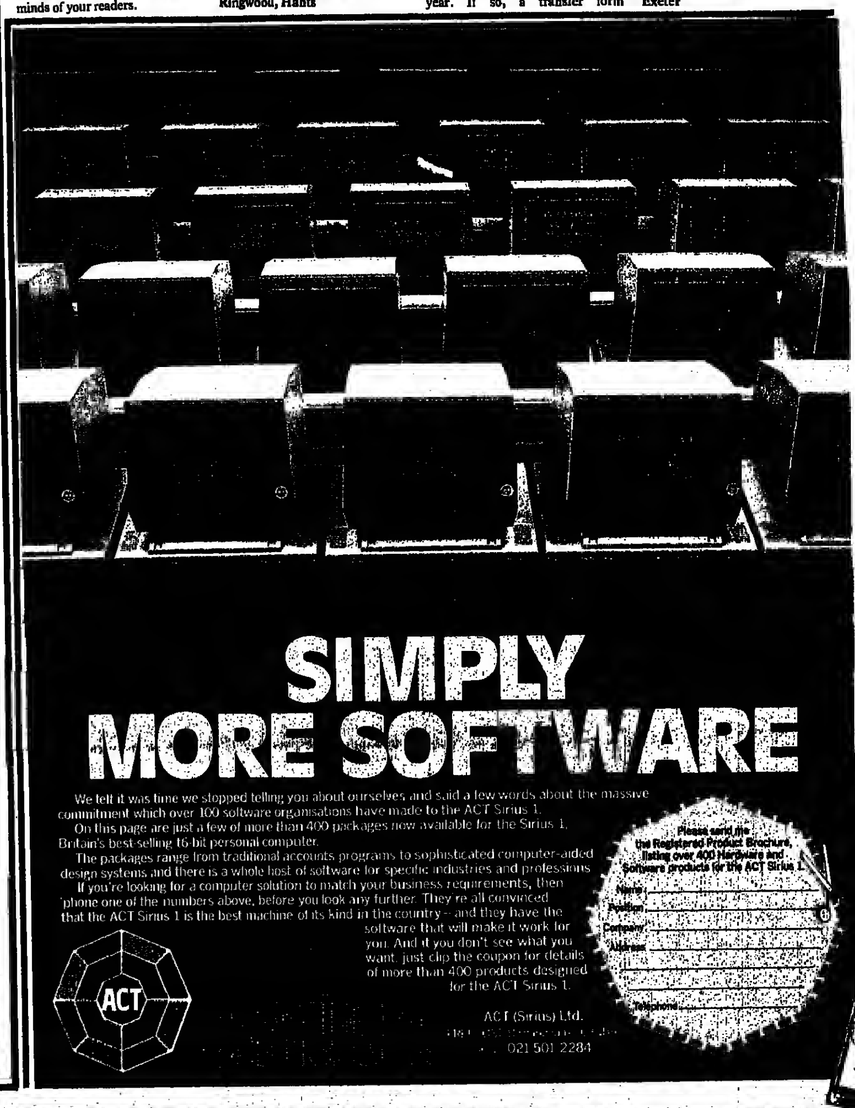
The overview states that "having calculated the number of qualifying days to which the employee is entitled, his record is checked to determine whether he has sufficient days of entitlement left to cover the period. If there are only sufficient days for part of the period, an exception form SSP1(E) is produced." This is a gross error.

"An additional cheek is to determine whether the employee, with the current PIW included, will have received SSP for more than six weeks in the current financial year. If so, a transfer form SPP1(T) will be produced and an employee's record flagged to prevent another being issued in the event of any further absences." This is incorrect. If the transfer date is not achieved in the current PIW, then a further transfer form should be issued in the event of any further absence.

Target Computer Group refers to "If the PIW is three days or less no SSP or other benefit is due." PIW is a technical term used in the Social Security and Housing Benefits Act 1982. There can be no PIW of less than four days. The Target system overview states that the system meets all the statutory requirements in full." A signed statement by Target reproduced in a survey by *Personnel Executive* magazine indicates that the system does not enable daily offsetting of SSP and OSP. This is a fundamental requirement of the legislation.

To end the disagreement and to turn the argument into a more fruitful discussion of the optimisation of SSP, we would be very happy to send our Director of Research to review to Target program with their systems designer and publish the results.

M. D. COPLESTON
Managing director
IMS
Exeter



They've got this gun next to the till

If your morning paper is reaching the doormat earlier, the reason could be that your delivery boy is being told where to go by computer.

One of our national chains of newsagents has installed point-of-sale equipment at 30 of its shops, with more to follow later. The equipment combines point-of-sale calculations with software written specially for newspaper distribution, including the facility to print a delivery map specified by the newsboys.

The system, designed by Dollabarn of Manchester for the Martin chain of 500 shops, gives each shop a daily printout of what publications are due in, and matches these with standing orders from customers. The processor can be stored under the counter, with just a keyboard on top for automatic entry of customers' payments, and to amend details of each order.

Point-of-sale systems are old hat now for some of the big supermarkets and department stores, but Dollabarn, which trades as Halo, is one of the first companies to offer equipment that even a corner shop could afford.

Dollabarn and Martin have formed a joint company to market their system to other independent newsagents. "There could be the same benefit to sole traders in other marketplaces such as hairdressing," says Dollabarn director Jeff Hodgson-Jones.

It is no good, Hodgson-Jones adds, programming an Apple or Tandy computer for the small retailer, because the resulting system would be too technical for the man who runs the corner shop. The best approach is to tailor the software and hardware for each application.

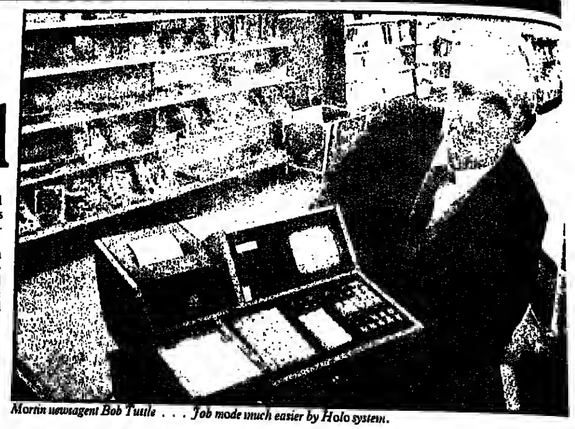
Another point-of-sale specialist, DSI Retail, intends to launch a micro-based product aimed at sole traders later this year. At present DSI has products aimed at retail chains and at department stores with more than one sales checkout.

The idea is to collect data at each point-of-sale, and feed it to a central computer to calculate overall profits and sales for the whole store, or chain. The exact method used depends on what the shop can afford.

The cheapest method is to use a standard till, costing about £500, and use optical character readers to scan tags on each item sold. The snag is that some tags will always get lost on the way from the till to the optical character reader attached to the computer. It is possible to attach a laser gun to the till to record the information as each item is sold, but this is more expensive, and time-consuming for the salesperson.

Undoubtedly the superior solution is to have point-of-sale tills with their own memory linked directly to the central computer. These incorporate their own table of prices, which can be updated at a stroke from the central computer, and allow each sale to be recorded with a special code.

If the wrong keys are pressed, it should be obvious from the receipt.

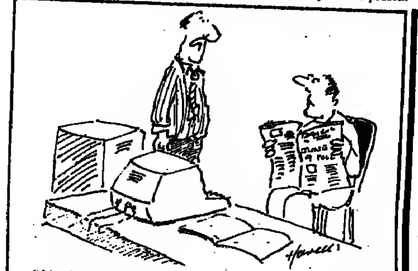


Mortin newsagent Bob Tuttle . . . Job mode much easier by Halo system.

These point-of-sale tills cost between £2,000 and £5,000, depending on how much memory there is, which depends in turn on how many different items of stock you want it to handle.

DSI has just installed point-of-sale tills with full-price look-up for a chain of five Essex shops that sells 3,800 items of camera and ff equipment. Being expe these items can justify a full look-up.

The tills are left on every Wednesday and Saturday for DS suck the data down to its Honeywell Level-6 minicomp to calculate sales figures.



"I just hope there isn't a change of government — having to change everything in the system from right justified to left justified".

Playing with numbers – it's not just a game

MATHEMATICIANS since Pythagoras have indulged themselves in the seemingly harmless pastime of hunting for ever larger prime numbers. Now this innocent recreation of mathematicians has been transformed into a frenzied race between the superpowers, as prime numbers are one of the tools of cryptography – the science of making and breaking codes.

The recent discovery of a new prime number by a US mathematician is therefore of more than academic interest. The number is astoundingly large.

Written in the conventional decimal way, it contains 25,962 digits. (The previous highest prime number known had only 15,000 digits.) But there is a simpler way to write it, as the number is one less than a power of two. Using the notation that the four is 2*2, and that eight (two times two times two) is 2*3, the new prime is 2*86243-1.

The number was discovered by David Slowinski at the Cray Research Laboratories. He used one of the world's most powerful computers, the Cray-1, to check that the number was prime, and it took the Cray one hour, three minutes and 22 seconds, which is a lot of processing time.

Keith Devlin, a reader in mathematics at the University of Lancaster, says that it was only possible to discover it because of its relationship to a power of two.

The new number is thought to be the 28th prime number in the increasing series of prime numbers that are one less than a power of two. But we cannot be sure, says Devlin, because Slowinski may have skipped a few smaller such numbers in his leap to the new prime.

"The search for the number was a mixture of the needle in a haystack method, and well-known algorithms," says Devlin. There was one particular algorithm that focuses on prime numbers that are one less than a power of two.

The use of prime numbers in cryptography depends on one simple fact. When two very large prime numbers are multiplied together, it is almost impossible to tell by looking at the number formed what the two numbers were. By trial and error it would take a Cray years to find them.

PUZZLER

HERE is an ingenious desk-calendar, in which two movable cubes are used together to denote (at the front of the tilted stand) every day in the month, from 01, 02, 03 . . . though to 29, 30 and 31. The day "25" is showing at the moment.

Your task is to work out which digits are concealed on each cube in our picture. See page 47 for solution.

Workplace is compiled by Philip Hunter.

A list of companies that won't ask you to pay more for 99% Guaranteed Time.

Digital Equipment

Setting new standards in service can be lonely. Particularly if you set them as consistently as Digital.

We were on our own in 1978, for instance, with all the "firsts" that made up DECservice.

And alone again in 1980 when we introduced Remote Computerised Diagnosis.

Now we're the only name on the list with 99% Guaranteed Uptime at no extra cost.

DECservice now with Guaranteed Uptime.

We can now guarantee our DECservice customers up to 99% Uptime on our more recently announced computer products and the entire VAX family.

With this option we will credit you for every hour the computer is down in excess of the committed Uptime level.

One for one.

Now DECSYSTEM Service for total VAX/VMS Support.

VAX/VMS users can now choose to have up to 99% Guaranteed Uptime on both hardware and system software.

Which means that any system problem is our problem. And we're only a phone call away.

It's a unique approach to integrated system maintenance.

And whether you specify Guaranteed Uptime with DECservice or DECSYSTEM Service we'll work with you to define the necessary steps to reach your required Uptime level.

Our agreements are clearly set out and cover the whole Digital system. With no fine print.

And with Guaranteed Uptime you only pay the standard DECservice or DECSYSTEM Service prices.

Not a penny more.

So write below for further information. And put your name on our list.

To: "Guaranteed Uptime," Digital Equipment Company Limited, P.O. Box 65, Imperial Way, Reading RG2 0TP.

I'd like to know more about Guaranteed Uptime:

NAME

POSITION

COMPANY

ADDRESS

CW2/6

Doing more. The Digital difference.

digital

PEOPLE

■ **Nick Winton** (above) has joined Keith Brindle Associates from the troubled Altergo Micro Systems, where he was engineering manager from 1981. He has gained wide computer engineering experience with Decca Survey, GCS and Data General and will be service director of o new company to be known as KBA (Micro Services) Ltd.

■ **Parudync** has appointed David Spicer os director of business development (Europe). Before joining the company, he was divisional manager, commercial systems division with Computer Automation.

■ **Stephen Fisher** has been promoted to sales manager, European operations at Wabash Datatech. He joined the firm two years ago as a UK sales executive and then a year ago became UK sales manager. **Jean Bernal**, previously a director of Nashua's Magnetic Products division, has been appointed area sales manager to develop and expand Wabash's markets in France, Spain and Portugal. He is based in Paris. **David Hartley** has been appointed as area sales manager designate for both the UK and Scandinavia. **Peter Robbins** has been appointed as a new UK sales executive for tape products, while **Danielle Smith** has been promoted to senior sales executive.

■ **Ashe Upadhyaya** has been appointed UK dealer manager for Tycom Corporation, responsible for the development of a 100-strong dealer network by the end of the year. He has been in the computer business for 10 years as a consultant, technical services manager and sales manager. Most of his experience has been with Data General and IBM.

■ **Michael Duff** has been promoted to sales support manager for the UK and Scandinavia at MSA (Management Science America). He joined the firm in 1979 as a systems consultant, and became divisional support manager in 1981.

■ A new micro consultancy Micro Solutions (UK) has been set up by computer professionals led by ex-ICL systems analyst, **Mark Bury**. Micro Solutions is aimed both at existing micro users and small businesses that are currently contemplating the purchase of a small computer.

■ **Carrie Bedford** (below) has been appointed to handle Western Europe sales at Strategic Planning Systems International. She was previously handling distributor sales for Peachtree Software International, and before that was business manager of the micro division for Leasco Software.

■ **Geest Computer Services**, which runs a chain of business centres including one in the City has appointed a territory sales manager to handle the payroll and computing problems of fluent firms. He is **John Perrott**, who joins the firm from Centre-file, Britain's biggest computer services company.

■ **Harris** has appointed **Barry Webber** as computer systems sales executive for Northern England. He joins Harris' Manchester base from GEC Quadrant Computer Services where he was responsible for computer sales within the GEC organisation.

■ **Nick Gibson** has been appointed sales consultant to Rediffusion Computers, to be based in the Bristol office. Gibson joined the company in 1979 as a junior systems analyst and has spent the last six months based at the London headquarters as systems consultant and acting support manager. **Andy Murray** has joined the company as a systems analyst based at the Bristol office. He was previously with ICL as a sales support executive.

■ **Bernard Fisher** has joined Peachtree Software International to initiate and handle agency operations in Europe. He joins from Core International France, where he was general manager of French operations.

Inmac has appointed Iain Stephen (above) as UK marketing operations manager. His responsibilities will cover the co-ordination of Inmac's marketing strategies, public relations and advertising. He held several positions in marketing before joining Inmac for companies such as Damart and EMI Data. He has a degree in marketing from Huddersfield Polytechnic.

■ **Semiconductor Specialists** has made two senior management appointments in a streamlining of the organisational structure. **Alex Early** has joined the company from Pedoka as sales and marketing manager. **Bob Slater** will be in charge of all finance and administration including accounts, stores, computer and premises. He is new to the electronic industry having previously spent 15 years with office stationery manufacturer Rexel.

■ **William Bayer**, is to be the new president of Shugart corporation, an independent, wholly-owned subsidiary of Xerox Corp. He replaces **James Campbell**, who will retire at the end of June. Bayer will retain his current responsibilities as assistant group executive and senior vice-president of Xerox IPG.

■ **Ian Rosa Head**, formerly a freelance test design engineer, has been appointed as sales executive in the Industrial Products Division of Computer Automation.

■ **Engineering Computer Services** has appointed **Dennis Merigan** as a technical support manager. He comes to his new position from Intergraph, where he was a consultant.

■ **Hatim Tyabji** has been appointed vice-president in charge of hardware products of the computer systems operations of Sperry. Tynbji joined Sperry in 1973 and prior to his new assignment he was vice-president and general manager of the Sperry Communications and Terminals Products division at Salt Lake City, Utah.

■ **BCD Systems** has appointed **Wito Schouten** as sales engineer with responsibility for developing a national dealer network for sales of the West German-built Basis-108 microcomputer. Schouten, who was born in Amsterdam, is a qualified accountant with broad experience in the computing world.

■ **Tony Wright** has been appointed to the new position of UK sales manager at Hughes Aircraft Company's line of automatic test equipment. He joins Hughes after five years with Gould Instrument Division, where he was a field sales manager.

■ **Graham Pemberton** has been appointed product manager at Lock Distribution, with responsibility for the Matsushita Panasonic, Fairchild, Thomson-CSF and ITW/Licon franchises. He was formerly a sales engineer.

DIARY

JUNE 7

Social evening. IDPM Birmingham branch. Tickets at £3.50 are available in advance from the secretary. Buffet and skittles included in cost. Members may bring along non-members as guests. Tel: (021) 550 0375. Selly Park Tavern, Pershore Road, Selly Park, Birmingham. 7.00.

JUNE 8

Chloride Standby Systems. IEEIE. Polygon Hotel, Cumberland Place, Southampton.

JUNE 9

Wine tasting/social event. IDPM Sheffield branch. Fountain Precinct, Sheffield. 7.00. Tel: John Reedman on Sheffield 618539.

Meeting. Electronics for Peace London branch. Wren Coffee-house, Jermyn Street, St James's Church, Piccadilly. 7.00. All Welcome.

Justification of formal methods for system specification. BCS Advanced Programming Group. Conference Hall, Prudential Assurance, Prudential Building, 142 Holborn Bars, London. 6.00.

JUNE 13

Tomorrow's staff – where are they now? IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

JUNE 15

SERC's software technology initiative. BCS Software Engineering Group. Chemistry Theatre, Birkbeck College, Malet Street, London. 10.30. Admission: BCS members £1, non-members £2.

JUNE 16

Visit to Hewlett-Packard, Hertfordshire. BCS West Herts branch. Details from Peter Greatrex on 01-623 5222.

JUNE 22

The office of the future. BCS Sussex branch. King and Queen Meeting Room, Marlborough Place, Brighton. 7.30.

CONFERENCES

■ TWO separate one-day seminars are to be held on June 8 and 9 at the London Hilton Hotel, by **EPS Consultants**. The first defines the term "multi-dimensional consolidation" and examines the requirements for swift analysis of data in the financial and marketing environments. The second seminar, entitled Automating the Statutory Accounts Consolidation Process, looks at developments in the area of accounting standards and the effects of the 1980 and 1981 Companies Acts. Likely developments in merger/acquisition accounting and foreign currency will also be discussed. The cost for attending the seminars is £50 plus VAT. For details, telephone 01-439 8221.

■ Management consultants **Baston Grove** has organised training courses on the ACT Sirius Mk 1. Students at the Warrington Micro School can work at their own pace in a "hands-on" situation with an experienced supervisor on call. The original self-teach packages cover typical standard commercial programs in word processing, accounting and book-keeping, broadsheet calculating, and database management. The courses are available at a time of the day which suits the client. Micro School offers this training at £7.50 per hour. Details: Warrington 36642.

A winner all along the line: The new MPS 96 9600 bit/s modem.

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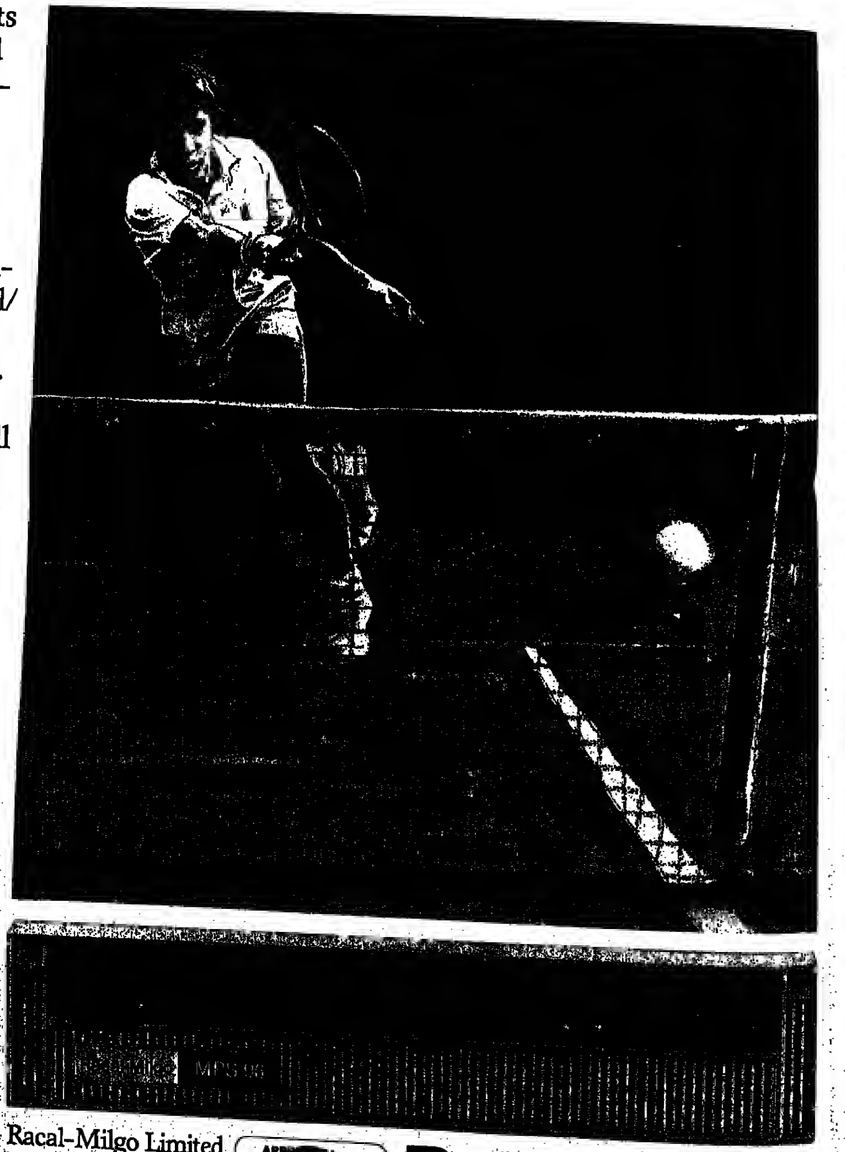

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NETWORKS

Making networks more manageable

Planning ahead is the answer, according to Brian Pugh

IT is estimated that by 1987 six million people in Western Europe will be using data communications every day. This will be a sixfold increase over the number today. In the UK the number of network termination points is expected to grow from 117,000 to 377,000.

At company level, installations will be under pressure to expand their services and to provide additional ones, such as private viewdata and personal computing.

But this could create nightmares for operations managers.

Most compsnies do not manage their networks; they merely respond to crises generated by the failure of one or more components. Lack of design criteria during the early years has created unmanageable networks.

Many still consist of a central CPU, supported by a mixture of batch and interactive terminals at remote sites. The number of terminals, small at first, has grown with increasing rapidity. Thus, there was a time lag before it was realised that a situation existed that required managing. By then it was too late.

The fashionable solutions to the problem are to introduce line monitoring aids; create a user help desk and appoint a network controller. But this merely conceals deficiencies caused by lack of experience.

Line monitoring aids have limited value; the user help desk is often a public relations exercise to

PUGH . . . Nightmares for managers?

calm irate users and the network controller is a convenient scapegoat when things get out of hand.

To superimpose such measures on an existing situation is like trying to support a bridge that has been built without foundations. The art of management is to try to anticipate problems and minimise their effects. Installations that cannot cope today will certainly not be able to handle the demands made on them in the future. The solution is to redesign the network in the light of today's knowledge.

For convenience of design, implementation and subsequent management the configuration from the centrally located files to the remote user's input device should be seen as three subsystems.

The processor sub-system comprises all equipment in the computer room up to and including the communications controller. The network includes all components from the central to the remote modem. Everything beyond that is the terminal sub-system.

The first and most important consideration in the design of a system is the user's needs. After this, the level of service needed and the amount the user is prepared to pay will determine the shape and size of each of the three sub-systems. These two factors must be emphasised to ensure the user understands what can be expected from the system.

The network sub-system is the most fragile and primitive part of the whole and, when it is critical, attempts must be made to reduce user dependence on it. It is hoped the introduction of digital exchanges, combined with fibre-optic cables, will improve the quality and reliability of data transmission circuits.

Unfortunately the tariffs for Switch Stream One, the first of British Telecom's X-Stream digital services to be available, are not likely to cause a stampede for its use. And a lot of communications software now in use is not X25 compatible.

Generally the most critical systems are interactive, not necessarily because of their importance to the business but because of their immediacy. Clerical staff working nine to five will not accept delays in response or communication failures.

The only way to insulate users from the risks inherent in networking is to locate time-critical data at the point of use. By distributing this part of the processing the user may get a better response time and should certainly achieve a higher uptime.

The factors influencing this are the superior interactive performance of minis and micros, which are not so good with batch, and the development of local area networks. LANs permit a method of resource-sharing that cuts the cost of remote processing, though sometimes this brings a trade-off in performance.

Personal computing should be performed away from the mainframe, and micros used for this purpose should have the facility to access the central computer only for information retrieval. There should be no updates or file creates, thus preserving the integrity of centrally stored data and disc space management.

Word processing is more effective when carried out on dedicated machines, with hardware and software tailored to the specific needs of this application.

Thus the mainframe is left free to do the job it is most suited for – batch-processing and storage of large amounts of data. For remote sites, where local files cannot be justified, low-volume multi-user TP can be supported without any noticeable degradation.

Most batch jobs, even time-critical ones, have some leeway built into them, so communication failures are tolerated more by remote batch terminal operators than those with VDUs.

If it is to be comprehensive, a private viewdata system needs a central processor. Centralisation of batch, limited transaction processing, and the use of videotex and systems development are good reasons for having two central processors to spread the load and provide back-up for each other.

Subminute facsimile digital transmitters will be more widely used (they can transmit an A4 document at 9,600 bits per second in 30 seconds). These transmitters, possibly with teletex between communicating word processors, will certainly be sharing future networks with traditional computer data.

The volume and diversity of traffic will increase the importance of maintaining a high uptime on the network sub-system. Duplicate private lines following completely separate routes from the A end to the B end are a good insurance, as is the rapid availability of spare modems.

Dial up facilities must be able to cope with demand at peak periods. Patching and re-routeing of lines must be swift and easy.

Despite their limitations, diagnostic and problem determination aids can be useful but the user still

Fault-finding on the central installation need not stop operations.

suffers if problem correction is lengthy. The aim must be to avoid or minimise the problem in the first place by thoughtful planning. When this fails then the problem should be bypassed so that correction does not inconvenience the user.

Software, particularly the operating system, should be given the same kind of reappraisal as hardware. Operating systems supplied as a sealed package seem to be more robust than those comprising selectable options with installation maintenance.

Finally there should be a constantly updated database of the whole system, giving details of the equipment by make, type and location. Operational and failure data should be recorded so that, periodically, statistics can be produced to highlight unsatisfactory performance for management action.

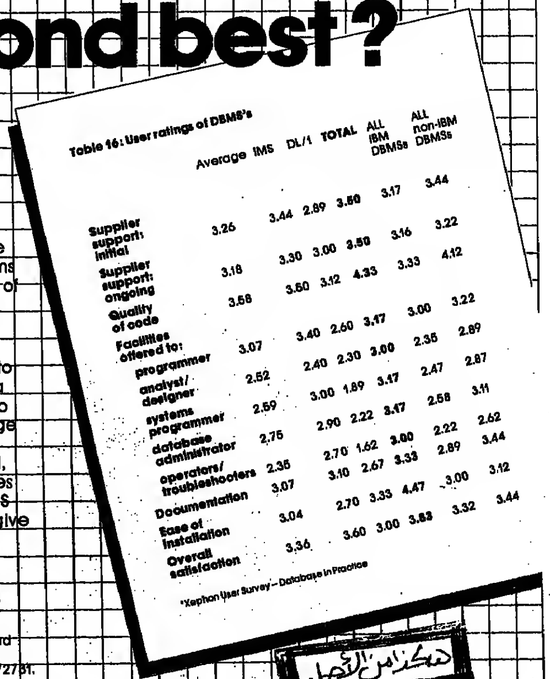
To make the scheme workable there should be a communications policy, so that, when each element of a sub-system falls due for replacement, changes can be made to implement the policy by degrees.

While operations should have executive authority for the management of the processor and network sub-systems, it is not practical to extend this to the terminals. Because of the user-friendly concept, most of intelligent terminal equipment is sold on the basis that specialist DP staff are not needed. As a result essential disciplines of operations and data security are often ignored.

Managers with responsibility for networks must, therefore, play the role of auditor, with the authority to visit, investigate and report on the way remote sites are supervised. This is the only way in which the integrity of the terminal sub-system can be guaranteed.

The only way to insulate users from the risks inherent in networking is to locate time-critical data at the point of use. By distributing this part of the processing the user may get a better response time and should certainly achieve a higher uptime

How long can you justify using second best?



The latest independent user survey* on Database Management Systems puts TOTAL at the top of the table in every category.

DBMS Ratings

Users were asked to rate their DBMSs on a scale from 0 (poor) to 5 (excellent). Average results are given in Table 16 for IMS, DL/1, and TOTAL (responses for ADABAS and IDMS were insufficient to give a meaningful aggregate score).

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OFFICE AUTOMATION

Turning benefits of technology into profits

David Firnberg looks at some of the advantages of office automation

Wordplex word processors in use in offices of the Northern Rock Building Society.

ACCORDING to a recent survey among business users of microcomputers the most important benefits sought were the hardest to quantify in cash terms. According to another survey — of companies without any preseot commitment to office automation — 25% were oot convinced of the benefits, 25% said that office automatioo equipment was too expeosive, and 33% said that typewriters were perfectly adequate for their needs.

Most companies are still reluctant to invest in office automation on a grand scale. Where, company directors want to know, is the payoff?

Yet information technology or office automatioo cao provide substantial cash benefits. Typical productivity gains quoted by users are 15 to 35% for secretaries and 5 to 25% for managers and professional staff.

The problems of justifying an investment in office automation by cost-benefit analysis are well-koown, but properly used it can be an accurate guide to decision-making. Benefits are: cost savings, cost avoidance aod qualitative intangible benefits.

It is easy to give a mooetary value to cost savings and cost avoidance. But iotangible benefits are difficult, though not impossible, to value. Thus it may be difficult, for example, to value improved staff morale, but easier to estimate the value of a resulting reductioo in staff turnover.

Investment in office automatioo is no different from any other commercial Investmeot and should yield a similar return for an equivalent risk. Of all the justifications advanced for investing in office automation the most commoo, and the most misunderstood, is increased productivity.

An approach to increased productivity that focuses oo the electronic office, the paperless office, the peopleless office is irrelevant, just as any approach that does not focus on the busioess needs of an organisation is irrelevant. Business efficiency will oot be improved by solutions in search of problems.

Approaches that are irrelevant give rise to meaningless measures of performance, such as the number of keystrokes per minute. The only *meaningful measures* of performance are those which are real in business terms and influence the bottom line of the profit and loss account.

Corporate decision-making productivity is difficult to measure, as it depends on the profits in a particular environment over a period of time. The value of improved information to the quality of managerial decisions is generally assessed subjectively.

Product productivity is best measured as the ratio of revenue to the cost of making a product. Such measures, however, are rarely straightforward. Several functional departments may contribute to making a product, but fair transfer pricing is difficult. It may be more appropriate to use pragmatic measures of the factors influencing cost and revenue.

Functiooal productivity is the ratio of output to cost of resources used. The unit of output depeods on the busioess function. Without revenue, functional productivity is only a measure of unit costs and relates ooly indirectly to profits.

Task productivity is easy to measure: the oumber of pages typed per typist per day, for example. However, it is at such a low level that it is unlikely to have rouch effect on profits.

Tool productivity is even easier to measure and is generally provided by equipmeot suppliers. Most suppliers have their owo measures, which are rarely compatible.

Improved productivity can be translated into profits by reducing costs, avoiding cost or increasing the value of the product. But functional or job reorganisatioo is often oeeded before identified benefits are converted into profits.

Rising costs of the office

THE cost of administratioo in UK companies is too high, whether compared with international competitors or as a proportion of total costs.

About a third of the UK's 23 millioo workers is employed in administrative or information jobs. And the number is increasing in relatioo to the total workforce. In UK maoufacturiog industries about 28% of workers are administrative or clerical staff. Io banks, the figure is 70% and in the Civil Service, 80%.

Labour costs are the largest proportioo of total office costs. A US survey in 1974 found that labour costs were 84% of total office costs. Advances in productivity in manufacturing are being swallowed up by low productivity in office work and services.

Administrative staff are expeosive. Salaries range from £5,000 a year for secretaries to £10-£15,000 a year for most professionals and managers, to which must be added fringe benefits, which are sometimes almost a third of a salary.

Skilled administrative and support staff are also in short supply. Even in times of high unemployment there are often severe shortages in particular sectors or geographic areas. The figure of 25,000 vacancies for office staff in Londoo alone is often quoted. The Alfred Marks Bureau has estimated that in London there are six jobs for every skilled secretary or typist available.

An office worker may handle 16,000 pieces of paper a year, and control a file of 20,000 pages. Every year 5,000 pages may be added to the file, and 3,000 removed. £350 a year may be spent on printiog, statiooery, other office requisites and small office machines for each person.

FIRNBERG . . . Cost of administration is too high.

The cost of producing 15 copies of a 30-page report, for example, is £8.50 for material and machine rental and between £8 and £10 for staff time oo printing and collating. In other words, each copy of the report costs more than £1. An IBM study has estimated that for each original document produced in the office, six copies are made.

Yet another area of concern is the rising cost and decreasing quality of mail services. The cost of first-class post has risen by 250% since 1975; from 4½p to 16p. But there are other costs associated with post to be considered — direct (the cost of paper, envelopes and labour) and indirect (filing, copying and distributing). The total cost of a single page A4 letter has been estimated as £3.28 in Inner London and £2.14 elsewhere.

There has been also a gradual deterioratioo of the postal service. In the UK there was a 4% decline between 1978-81. Before the introduction of the two-tier system in 1967-8, six billion items were delivered next day; in 1981 three billion got next day delivery. There has also been a reduction in service: the last evening collection is now 5.30pm outside inner-city areas.

Telecommunications costs have increased much less rapidly than post. In 1970, the cost of an average telex was 13-14 times that of a first-class letter; today it is only four times.

Word processing saved £20,000 a year in pay

ALMOST all coropanies that implement office automation pilot studies report savings in the cost of staff, and pay-back periods of one to two years.

Word processing is often seeo as a first stage in office automatioo. Receot studies by Eosys indicate the range of cost savings and other benefits that can be achieved. Io ooe modest word processing scheme, net *savings* of £20,000 a year are reported for a capital cost of £8,000.

A larger shared-logic word processing system brought about savings of £40,000 a year through reductions in staff and external costs, for a capital outlay of £40,000 and anoual costs of £18,000.

In another example — a word processor with limited computing capabilities for export documentation — a capital cost of £8,000 brought about savings of £20,000 a year on staff salaries, £5,000 a year on work previously previously contracted out, and a range of intangible benefits, including: documents available more quickly; amendments carried out speedily; a reduction lo errors; a reduction in the need for checking; fewer discrepancies; and the ability to adopt internationally recognised standards.

A dramatic example of cost saviog resulted from the application of word processing and microfilm to legal records. For a capital cost of £26,000, net saviogs of £130,000 a year are reported. It was possible to reduce staff; reduce office accommodatioo; reduce the *time taken* to update records; reduce search time; improve the durability of records; improve job satisfaction and interest; and dispose of all the original documents.

Improving secretarial productivity by introducing better tools such as word processors is oot an end in itself. The aim is to improve managerial productivity by providing better support.

Office automation cao provide four main value-added benefits: increased information accessibility; increased people accessibility; increased control over personal activities; and increased individual contributions.

With locreased *information* accessibility users can define their needs more clearly and search for information more quickly aod cheaply. The information can be more up-to-date and accurate; and personal, corporate and public information can be more readily accessible.

Electronic mail and messaging can provide greater people accessibility. A message can be sent when the user likes, without any oeed for the recipient to be available. An incoming message is stored in a *mailbox until the recipient is ready* to read it. Usually a message is read the same day, and the timespan from sending a message to receiving a reply can be reduced from days or weeks to hours. According to one user, the system "definitely speeded up the metabolism of the company".

Wheo working in an office, a user can deal with requests for information at once. There is, therefore, a significant reductioo io ioterruptions and a resultant improvement lo work quantity and quality. Outside the office such systems are usually accessible from various types of termioal, including telex and viewdata.

Experience of users indicates that teleconferencing facilities have long promised a reduction in the oeed to travel to meetings.

Forcing down price of equipment

OFFICE automation is an increasingly competitive business. The falling price of raw hardware and competition among suppliers is forcing down equipment costs.

There has been a 20% a year decrease in price per unit of performance of computer processors over the last 10 years and the cost of peripherals — printers and storage *devices* — has dropped at 12% a year for greatly enhanced capability.

The cost of a complete small computer system, including a printer and storage, is falling at 35% a year. Such systems are now readily available for £2,000 to £3,000. No organisation can afford to ignore these treods.

Experiences of users emphasise the value of pilot studies — small projects that can be used as steppiog stones to office automation. Firms need a basic familiarity with office automation to gain confidence and to find out how automatioo is best applied.

Applications aod opportunities for benefit will more readily become evident with experience. Moreover, familiarity with office automation equipmeot and koowledge of its poteotial will remove obstacles to its introduction.

Could firms roanage in the *future without office* automation? They could, but it would be a poorer future!

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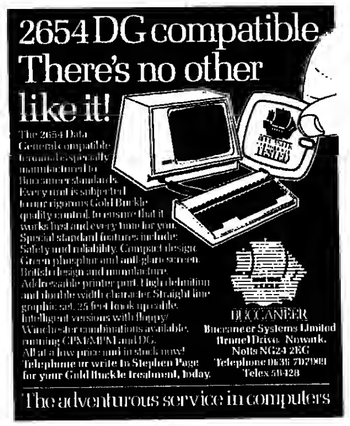

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OFFICE AUTOMATION SHOW/CONFERENCE

Second exhibition wins bigger support from a growing industry

John Charlton provides a preview of next week's show at the Barbican

"PRODUCTIVITY through the integrated office" is the slogan, as exhibitors prepare for the second Office Automation Show, at London's Barbican Centre, June 7-9.

There will also be a three-day conference on office automation. Subjects include: "Office automation tools" and "Facing the human issues". Among the speakers will be David Firnberg, a prominent UK consultant on leading edge technology in office automation (see page 19).

Last year about 30 exhibitors attracted over 6,000 visitors. This year there will be over 50 exhibitors.

Although young, the office automation industry offers many products. Large and small firms will be at the exhibition, with hardware and software.

Hewlett-Packard, Wang, Data General and Apple will all be showing products new to the UK.

A Wang spokesperson says of his firm's exhibits: "They will reinforce our claim as the leaders in the office automation scene. Basically we'll be showing a low-entry system to the Wang VS45 computer range. This is fully compatible with other products in the VS range.

"Prices for a VS45 system obviously vary depending on size and function. A system featuring a CPU, a 275 megabyte disc drive, 10 workstations, four printers, and operating software, including utilities and one compiler, would sell for about £90,000.

"Wang exhibited last year, and thought the show was extremely successful. We attracted the right sort of people."

Hewlett-Packard will display its Desk Manager system, launched in April. This is an electronic mail system, which also handles personal filing, time management and word processing. It is aimed, says the firm, at "the busy executive."

The HP120 personal computer, which is being used by the crew of Britain's America's Cup entry, will be on display. So will a fairly new HP telex system and the HP 3000 business computer.

"We didn't exhibit last year," says Hewlett-Packard's Kate Burton. "But the show has grown and it's a good medium for us to show our products."

The Data General stand will feature the firm's CEO (comprehensive electronic office) system, based on an MV4000 CPU, which can support up to 64 terminals.

A Data General spokesperson said: "We were at the show last year, when office automation was quite new, and we'll be interested to see what sort of visitors we get this year."

Among microcomputer pioneers, Apple will show its new AppleNet system, which links various types of Apple micro (including Lisa), and is said to allow users to transfer information electronically from one system to another "quickly and easily".

Up to 28 Apple systems can be linked by AppleNet. The price is under $500 per connection, and an Apple spokesman said that AppleNet would become available in the UK in the autumn, marketed through Lisa dealers.

Middlesex-based Zynar will show its Plan 4000 personal local area network (LAN), developed jointly by Zynar and the US company Nestar.

Plan 4000 was designed for the IBM Personal Computer and the various Apple micros. It can support 255 workstations and has a file transfer facility.

Zynar will be making a special offer on the Plan 4000 to visitors who call at their stands. "We got on very well at last year's show, and picked up about 100 sales leads," said a Zynar spokesman.

The Department of Industry will be at the show. Said a spokesperson: "As yet we have not finalised our plans, but we intend to show a total office of the future. We will also be giving advice to potential buyers of office automation equipment.

"There is money available to help people purchase office automation products, and we'll be only too glad to advise anyone who cares to visit our stand."

De Bono Multiprocessor Computing of Oxford only started in November 1982. It is led by ex-Army officer Peter de Bono, brother of Edward, the famous lateral thinker.

De Bono will feature its Action Discovery network multiprocessor systems. These were developed four years ago in Pasadena by Action Computing Enterprises. One system can support 16 users; the other, seven.

De Bono will display for the first time its new family of micros: a home system, an executive system and a business system.

It will also show its databse, which, it says, "is designed for the integrated organisation and includes office automation, word processing and accounts capabilities."

At the show for the first time is Doric, which will occupy three stands, and show a range of office automation software sold direct to end users.

The range includes Infotext, a new product that allows users to store and retrieve free text documents. According to Doric's Larry Kurtz, the company's software is suitable for a variety of mini and supermini computers, including Digital Equipment and Prime. "We'll be using a Prime 2250 on the stand for demonstration purposes," he said.

There is a wide range of literature to help businessmen decide what form of office automation meets their needs. Gower Publishers will display a range of guides, including "Planning for the Office of the Future"; "Planning for Electronic Mail" and "Planning for Information Handling", as well as a book by Dennis Jarrett, called "The Electronic Office."

Dictaphone, one of the oldest names in office equipment, will display two voice-to-word processing systems, with the 1984 style names Thoughtank and Thoughtcentre.

Also on show will be Dictaphone's new Model 6000, which the firm says offers a "better than most" library of features.

Sessions of the conference are from 9.30-12.30 and 2.00-5.00. It starts with a keynote session, free to all registered delegates, at which the speaker will be Michael Slynn, manager of office systems for General Motors in Detroit.

General Motors was one of the first giant US companies to automate its offices. Slynn will talk about the problems he and his organisation encountered, and the benefits that have accrued.

Another speaker will be Amy Wohl, president of the Advanced Office Concepts Corporation, of Pennsylvania. In a controversial recent paper on office automation in the UK, Wohl made the claim: "Class consciousness is a key issue in the spread of office automation in the UK.

"In terms of the spread of office automation systems, America is well ahead of the UK," she explained. "One major reason for this is that American offices are somewhat less class conscious, and in general, clerical staff in the US are not unionised."

Don Baker, a partner in the Duff-Bentley Consulting Group, of Toronto, will start the afternoon session on June 7 with a talk entitled: "Word processing – entry point to office automation."

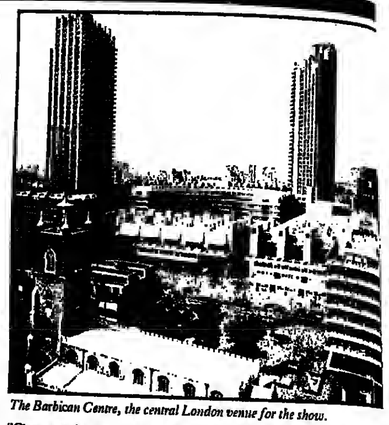
Word processing is, for most business, the entry point into the world of office automation. Baker will talk on the state of the art in word processing today, from the point of view of available technology, as well as from the viewpoint of management – problems of implementation, as well as trends in equipment and usage.

Firnberg will discuss methods of measuring costs and productivity and, in his own words, "try to throw some light on what productivity means to the British and European manager."

"Facing the human issues" is the title of a session by Jean Naugès, principal of Bureautique SA, in Paris, who will talk about ways of solving the problems of redundancy – e.g. by re-training and by changing patterns of work.

OFIX (The Office of the Future Information Exchange) is a British group consisting of users who have worked on what are said to be some of the most advanced projects in the UK. The secretary of OFIX, John Ross, will lead a session entitled "Learning from the pioneers".

The conference will end with a panel of experts discussing the future of office automation.



The Barbican Centre, the central London venue for the show.

British Telecom, recently rescued from privatisation by the General Election, will be showing its latest call connect equipment. Three up-to-date switchboards will be on display: Monarch, Viceroy and Ensign. They are said to save time, money and staff, and provide call diversion, call back, abbreviated dialling and direct Intercom facilities.

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They currently require an Analyst/Programmer with a good educational background and sufficient experience to take responsibility for database and technical projects.

You will also have the opportunity to work on additional areas including systems administration, user liaison and other technical applications.

Ideally your experience will include some of the following skills:
★ INFO
★ Fortran
★ Database applications
★ Technical applications

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For further information and an early appointment for interview phone Knight on 01-491 4708 quoting Ref: YY124.

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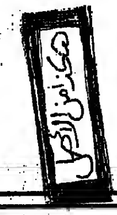

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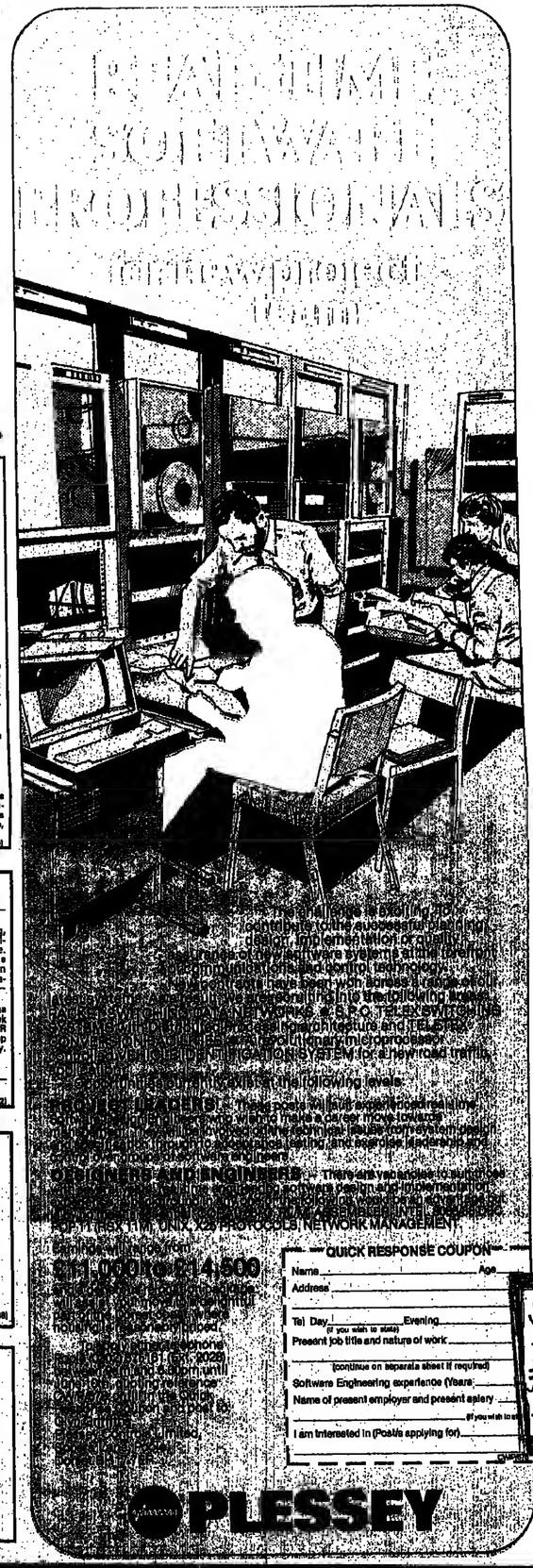

Royal Military College of Science

Associate Professor of Computing Science

The College runs first degree, post-graduate, army staff and special courses on a wide variety of subjects. While its primary function is the scientific education of army officers, the student population includes civilians and military personnel from overseas. It is a residential establishment occupying a large estate in the Vale of White Horse near Swindon and has an academic staff of over a hundred. There are extensive laboratories and workshops; and research is encouraged, and supported by a variety of outside sponsors.

An Associate Professor is now required because of a forthcoming retirement.

As Head of the Computing Science Branch, the responsibilities include: providing a computing service for the College; planning and providing the computing element in undergraduate courses in science and engineering; running courses in computing science and systems design at MSc, undergraduate and other technical post-experience levels; language development (eg ADA), structured design techniques, expert systems, local area networks and the application of simulation techniques to tactical and other battle training. The Associate Professor will build on the successful reputation of this Branch by growth in research and the applications of computing science and by the development of new teaching commitments in line with the rapid changes in technology of this discipline.

Candidates should normally have a good first and higher degree in computing science or allied subjects and recent active experience in teaching the subject at all levels. The ability to manage and maintain computer systems is essential. Experience in designing courses and allocating resources to implement them is highly desirable.

Further information about the post may be obtained from Professor M G Farley on Swindon (0793) 782551 ext 592.

Salary will start between £15,010 and £18,505 according to qualifications and experience.

For further details and an application form (to be returned by 24 June 1983) write to Civil Service Commission, Alencon Link, Basingstoke, Hants RG21 1JB, or telephone Basingstoke (0256) 68551 (answering service operates outside office hours). Please quote ref: S/5973/4. (3883)

UNIVERSITY OF STIRLING
Department of Computing Science

LECTURESHIP

In conjunction with the Department New Diploma Information Technology there will be new temporary Lectureship for one year commencing in September 1983.

An interest in Networks Operating Systems or Data Bases would be desirable, but candidates with other appropriate interests will be considered.

Salary on Scale £7,190-£14,128.

RESEARCH ASSISTANT

A temporary appointment for three years, preference will be given to applicants with interest in Intelligent Knowledge Based Systems Software Engineering, Formal specification.

Salary on Scale £6,310-£9,875.

Further particulars on both posts are available from the

University Secretary
University of Stirling
Stirling FK9 4LA
Tel: Stirling 3171 Ext. 2314

to whom applications giving details of qualifications, experience, etc. together with names of two referees should be returned by 27th June, 1983. (3930)

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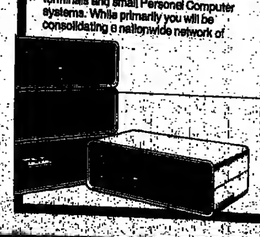

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Application forms and further particulars from The Personnel Office, Portsmouth Polytechnic, Nuffield Centre, St. Michaels Road, Portsmouth PO1 2ED.

Closing date for applications is: 14th June, 1983. (3941)

North Staffordshire Polytechnic
Faculty of Computing, Mathematics and Education
Department of Computing

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Application forms and further details may be obtained from the Personnel Officer, North Staffordshire Polytechnic, College Road, Stoke-on-Trent ST4 2DE, Telephone (0782) 45851, Ext. 297.

Previous applicants should notify us if they wish to be reconsidered.

Closing date: 17th June, 1983. (3895)

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The appointment is for a fixed term of two years. As some travelling may be necessary applicants should possess a clean, current driving licence.

Application forms, quoting reference CRA1, and further details are available from the Regional Personnel Manager, Severn Trent Water Authority, Abelson House, 2297 Coventry Road, Sheldon, Birmingham B26 3PU. Telephone: 021-743 4222, Ext. 2076/2077.

Closing date for the return of application forms: 16 June, 1983.
This post is open to both men and women.

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You should have a degree or equivalent qualification, with a minimum of three years' solid experience working with large IBM systems and software, and be capable of solving complex systems problems.

We offer a competitive salary supported by a generous benefits package which includes free life assurance, contributory pension scheme and BUPA membership. Relocation assistance will be provided where appropriate.

For an application form, please write to Rena Southcott, Personnel Officer, at IBM United Kingdom Laboratories Limited, Hursley Park, Hursley, Nr. Winchester, Hants, SO21 2JN.

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ICL

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(3848)

SYSTEMS AND PROGRAMMING

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SYSTEMS ANALYST
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IBM SYSTEMS ANALYSTS
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VAX/PDP PROGRAMMERS	BASIC+	SURREY
PDP ANALYST/PROGRAMMER	FORTRAN	MIDDX
DEC PROGRAMMER	COBOL	LONDON

J.GEN

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FOR FURTHER INFORMATION, PLEASE TELEPHONE 01-439 7871

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ME29 SNR OP	£6,500	LONDON	1 YEAR DAYS ONLY
2900 VME OP	£NEG + BONUS	BERKS	
VME/B NETWORK TEC.	£10,000	MIDDX	2 YEARS
DEC			
NETWORK ASST/CON'	£8,000 + 10%	WALES	2 YEARS
OPERATOR	£7,000	SURREY	18 MONTHS
OPERATOR	TO £6,000 + 15%	LONDON	1 YEAR NOT NEC. DEC
WANG OP	TO £10,000	LONDON	2 YEARS
HONEYWELL 6 & DPS 6 OPS	£6,750	WILTSHIRE	1 YEAR

POSITION	SALARY	LOCATION	EXP.
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OPS MGR.	£12,500	BERKS	10 YRS. DOS/VS
SEN OP	£10,000	LONDON	3 YRS. MVS JES II
OPERATOR	£8,500	KENT	3 YRS OS/DOS
OPERATOR	£7,000	W. LONDON	18 MNTHS DOS/VSE
OPERATOR	£6,500	SURREY	1 YR DOS/VSE, VM
OPS SUPPORT	£10,000	SCOTLAND	5 YRS TSO/JCL
OPS SUPERVISOR	£9,500	MIDDX	7 YRS DOS/VSE
TEC SUPPORT	£10,500	LONDON	5 YRS VSAM/CICS, JCL
OPERATOR	£7,500	LONDON	2 YRS DOS/CICS
TEC SUPPORT	£9,000	BEDS	5 YRS OS/JCL

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IBM SYSTEM 38
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TANDEM
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CICS COBOL/MBASIC
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ISM 4341, DOS/VSE, PL/1, CICS PROGRAMMERS	– London
SENIOR MVS SYSTEMS PROGRAMMERS X 2	– London
CICS/DL1 SYSTEMS PROGRAMMERS X 2	– London
TANDEM, GUARDIAN, COSOL PROGRAMMERS	– London
HP 3000, IMAGE, QUERY, COSOL PROGRAMMERS	– London
UNIVAC 1100, EXEC 8, FORTRAN PROGRAMMERS	– London
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The remuneration paid by ECMWF is not subject to national income tax. The salary will depend on the qualifications of the candidate and their experience ... Qualified candidates ... should send their applications with a detailed C.V. and the names of three referees before August 1, 1983 to:

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(3888)

sb

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Computer Installation
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£7,791-£8,325

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For further particulars and an application form, contact the Personnel Officer, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel: 051-207 3581 Ext. 2518.

Please quote Reference No. LP 599.

Closing date 14 days from the appearance of this advertisement.

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(3843)

ilea Inner London Education Authority

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(3904)

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(3890)

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CHIEF OPERATOR

Our computer department has a 1903T and 370/145 and is looking for experience in the following areas:

★ Ability to motivate staff working three shifts.
★ Capable of giving training in operation of 370/145 and ensuring that standards are maintained.
★ Good understanding of JCL, OS/VS1, IBM Utilities and SERVICE AIDS.
★ Willing to be part of an active management team.

Pleasant offices, staff relaxation room, pension scheme, etc.

Good salary for the right applicant.

Please telephone for an application form or send full details to:

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Automatic Data Processing Ltd
Heathrow House, Bath Road
Cranford, Hounslow, Middx TW5 9SP

(3935)

PROGRAMMERS,
ANALYST/ PROGRAMMERS,
SENIOR PROGRAMMERS

£18,000 to £28,000

We have requirements for PL/1 staff with the following skills:

★ OS JCL & TSO/SPF
★ VM/CMS
★ IMS-DB or DL/1
★ IMS-DC or ADF
★ CICS or VSAM
★ MARK IV or GML/SCRIPT
★ STRUCTURED TECHNIQUES
★ Experience of Financial, Payroll, Materials or Transportation Applications.

If you have **ANY** of the above skills, we are interested in **YOU.**

These are **ONE-YEAR** Contracts in the following locations:

SAUDI ARABIA (TAX FREE PLUS £11,000 Expenses Package) — OVER **50** VACANCIES

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DALROTH

KUWAIT Alghanim INDUSTRIES

£20,000-£25,000 Tax Free

plus Married Status plus Excellent Benefits

The MANAGEMENT INFORMATION SERVICES GROUP of this major Middle East Company, trading on a wide basis are looking for two CAREER PROFESSIONALS to take their Data Processing Function into the 1990's.

KUWAIT offers one of the most progressive and liberal environments in the Middle East where the whole family can enjoy a high standard of living, with schooling to 'A' level standard, superb sporting and social facilities, excellent accommodation and working conditions and full medical and life and disability insurance cover.

ALGHANIM INDUSTRIES have a progressive policy of development both for their equipment and staff, with a positive policy of promotion from within; however to implement their immediate plans they currently require to recruit externally:

TECHNICAL SERVICES MANAGER

who will have a minimum of 10 years' experience and be thoroughly familiar with the software range on the installation described below.

SYSTEMS and PROGRAMMING MANAGER

who will also have a minimum of 10 years' experience, with a heavy emphasis on Business Analysis and Project Management. Experience of retailing and inventory control systems in a commercial environment, utilising on-line distributed processing techniques, is also essential.

The installation is a 2 MB IBM 4331 running under DOS/VSE POWER/VSE, using CICS/DL1 on-line to 3270 TERMINALS and 5260 P.O.S. TERMINALS (scheduled for Sept.). Other software used includes VOLLIE, LIBRARIAN, CA-EARL, CA-SORT, JASPER etc. Also to be supported are CMC MICRODATA and a range of MICROS (including the IBM P.C.) to be introduced for Distributed Processing and Office Automation Systems.

Screening and initial interviews will be held in London early/mid June and selected applicants and wives will have the opportunity to visit the Group's Headquarters in Kuwait.

For further details please contact Peter Henrick on 01-493 2947 days, or 01-390 1640 evenings/weekends quoting Ref. No. 9978.

DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON W1 (3944)

L.E.R.S

Research Centre of the French Company Synthelabo is recruiting for its scientific computing group

computer scientists

to work on applications related to many aspects of pharmaceutical research. Candidates must possess:
- a good honours degree in computing or equivalent
- an in-depth knowledge of UNIX and C
- an interest in DBMSs.

Experience of any of the following would also be useful but is by no means essential:
- biomedical research
- PRIME
- WANG
- HEWLETT-PACKARD
- French language.

All applications will be treated in the utmost confidence and should be addressed to:
L.E.R.S. Direction administrative et technique
58-60 rue de la Glacière 75013 Paris France.

OPERATIONS SUPPORT STAFF

The Royal Bank of Scotland has vacancies for experienced JCL writers in its Operations Support Group, based in their Data Processing Division at 34 Fettes Row, Edinburgh. The Division, which employs some 300 staff, is the focal point of the computer network which serves the Royal Bank throughout the UK.

Currently we have 1 x IBM 3033N, 1 x IBM 3032 and 2 x IBM 370/158 AP installed operating under MVS/JES2 and VM/CMS to cater for on-line and batch applications and an IBM 3083J is scheduled to be installed in June.

Ideally, candidates will be in their early twenties and will have two to three years MVS JCL experience. This must include a working knowledge of VSAM, catalogued procedures and generation data groups. Although not essential it would be a distinct advantage to have knowledge of one or more of the following: VM/CMS, TSO, OPC, DCF, FDR, UCCI and UCCII.

The post carries a competitive salary and a number of attractive fringe benefits including non-contributory Pension and Staff House Purchase Schemes.

Applications and enquiries, stating age, qualifications and full career details should be made in writing to:

A J McCreath Esq,
Assistant Staff Manager,
The Royal Bank of Scotland plc,
PO Box 31, 42 St Andrew Square,
Edinburgh EH2 2YE.

The Royal Bank

Tri-Wall CONTAINERS LIMITED

SYSTEM 34 ANALYST/PROGRAMMER

c. £10,000 LOUGHTON, ESSEX

We are looking for an experienced IBM System 34 Analyst/Programmer who is seeking to take his first step towards Data Processing Management by taking responsibility for our System 34 Installation. The system is currently being up-graded and a diverse programme of improvements envisaged, including communications with a large IBM mainframe.

The successful applicant must have had two years' experience of systems analysis and programming using R.P.G.II.

We are a well-established member of an international group, marketing packaging supplies and systems. The basic salary is negotiable according to experience, and is supported by comprehensive other benefits.

Send your C.V. to our Financial Controller

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DARTFORD AREA

For major client with PDP Mini, Zilog micros, and bureaux services

PROGRAMMER

24-30, HNC/Degree Maths Computer Science. Experience in DEC PDP11 with RSX11M, Fortran and Macro 11

SYSTEMS ENGINEER

27-35, Degree Maths Computer Science Engineering. Experience of computer software development for Computer Aided Design

Salaries negotiable

For further details contact
STIRLING EXECUTIVE PERSONNEL
01-940 4077

Management Services Manager

£17,000 North West London

The company is a well-established subsidiary of a major international group who are embarked upon a substantial growth programme.

To support this growth it is planned to install comprehensive manufacturing systems and the up-grade of existing financial and commercial systems.

The person appointed should have proven experience of introducing manufacturing systems and of a managing a department to plan and achieve objectives.

Applicants should apply with details of their career and relevant experience to Confidential Reply Service, Ref. ASM 8737 Austin Knight Limited, London W1A 1DS.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor. (9936)

Opportunities in Automation & Control systems

Computer Vision
Robotics
Communications
Process Control
Automation

Our Client is a worldwide Organisation, with many brand leaders for the consumer marketplace. Already an acknowledged exponent in the use of mini and micro computer based technology to aid the efficiency and cost effectiveness of their production processes, they are continuing to increase their investment in this advanced area of technology.

As a result, they now wish to make two key appointments within their Systems Engineering and Control Engineering functions. Both positions represent superb opportunities for the successful Candidates to join small specialist teams working with innovative technology. Occasional travel within the UK and overseas is envisaged.

Senior Software Engineer to £13,000

To join a small independent unit responsible for providing high performance software/hardware systems within challenging and innovative areas, which currently includes Computer Vision, Robotics and Communications. Whilst a use is made of DEC and RTL2, experience in this area is not essential providing a sound software background in real-time, multi-tasking applications can be shown. Again, whilst not a pre-requisite, a Degree would be most welcome.

Control Engineer c £11,000

Three to four years experience in the design and application of process control and automation systems, utilising microprocessor or computer based technology is ideally required for this position, which is linked to the development of a highly automated production plant. Candidates should preferably be qualified to Degree standard in electrical, electronic or control engineering, and have a sound understanding of instrumentation and digital control techniques.

In both instances, it is equally important that Candidates possess good interpersonal skills enabling them to deal effectively at all levels of user contact.

Terms and conditions of employment are excellent, and the benefits package will include generous assistance with relocation to this pleasant area of South Birmingham, close to the countryside of Warwickshire, Hereford and Worcestershire.

As your first step towards these challenging opportunities, contact our Advising Consultant, **Peter Lees**, on **021-236 3781** (24 hour answering service) or 0902 632141 (Evenings and Weekends).

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Specialist Computer Recruitment Ltd

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NORTH: International House, 84 Deansgate, Manchester M3 2ER 061-833 0427
BELGIUM: Avenue Louise 327, Boite 4, 1050 Bruxelles 010 322-640 7151/71
HOLLAND: Willemsparkweg 92, 1071 H.M. Amsterdam 010 3120-760947

(3907)

IMS OPPORTUNITIES

If you are seeking a rapidly developing IMS environment where you can develop your skills then excellent career opportunities exist with our client who has Computer Centres in the West Midlands and Essex. The West Midlands Centre houses dual IBM MVS mainframes supporting IMS and TSO via a nationwide VTAM network exceeding 1000 terminals. The Essex location is an IBM MVS CICS environment which will shortly be moving to IMS. As a result of this development the company is seeking high calibre IMS staff in two areas:

IMS SPECIALISTS

As an IMS Specialist you will be providing advice and guidance on all aspects related to IMS database system design, development and support. This will include close liaison with applications development staff and technical systems staff to ensure the most efficient utilisation of IMS.

Some travel to other UK locations is envisaged to enable specialist consultancy activities to be performed.

IMS SENIOR SYSTEMS PROGRAMMER

As an IMS Senior Systems Programmer you will be responsible for the installation and performance tuning of a complex IBM IMS software environment. In addition to sound IMS technical skills you will ideally offer general systems programming and systems generation experience. The ability to supervise junior staff and perform a team leader role will be an additional advantage.

The company is a member of a very successful UK Group and is able to offer excellent career prospects. Commencing salaries are negotiable dependent upon experience offered and the benefits package includes relocation assistance if required. Both centres are sited in pleasant residential locations with attractive surrounding countryside.

WEST MIDLANDS AND ESSEX

£10-£15,000

To progress an application for these positions write or telephone DP Selection Services quoting reference W6021.

Initial interviews may be conducted in the Midlands or at our London Offices.

01-434 2042
(24 hour Ansaphone)

dp SELECTION SERVICES
A member of the DP Support Services Group
7 Swallow Street, London W1R 7HD
"We look forward to hearing from you."

SYSTEMS AND PROGRAMMING

RPG II/III

PROJECT LEADER/IBM SYSTEM 38 — To £14,000
One of the world's largest food chains requires an experienced person to head a small development team, developing a wide range of interactive business systems, preference will be given to candidates who can demonstrate leadership ability, and familiarity with design and programming methods gained in an IBM System 38 environment. The company offer an attractive salary together with good company benefits.
Ref. G/2393

SENIOR ANALYST/PROGRAMMER — To £13,000
Large manufacturing concern in South-West London require a Senior Analyst/Programmer to play a key role in their IBM System 38 development plans. Having recently upgraded, an extensive background in IBM System 3/RPG II is essential, preferably coupled with some system 38 and/or M/APICS experience. This is a pure development role, acting as second in command to the D.P.M., so you should be capable of liaising at all levels, and supervising where necessary.
Ref. C/2000

IBM SYSTEM 34 - KENT — £10,000
A leading retail organisation are currently seeking an Analyst/Programmer with sound knowledge of RPG II, and with at least 18 months' experience on an IBM System 34 environment. In addition to good analytical skills, candidates should have a mature and responsible outlook. You will be a major involvement in the implementation of a Stock control System and maintain ongoing systems
Ref. G/2326

IBM COBOL

MOVE INTO ANALYSIS — WEST END — £10,500 neg.
World-wide petroleum group, running IBM 3031/3033 with MVS, CICS and DL/1 seek an enthusiastic Analyst/Programmer to move into a pure analysis role. You should have 2-3 years' D.P. experience with a background in IBM COBOL, CICS, DL/1, MVS and the ability to use both your technical and liaison skills to their full advantage. Benefits are excellent including, L.V.s, subsidised restaurant, life assurance, health care etc.
Ref. C/1578

PROGRAMMER/ANALYSTS — ESSEX — c. £9,000
A leading manufacturing concern with a large IBM installation running under DOS/VSE, VM/CMS, CICS and DL/1 require 2 more Programmers with an IBM COBOL background and ideally database skills. A positive personality and the potential to move into analysis would be a distinct advantage. CICS training given where necessary.
Ref. G/1416

ANALYST/PROGRAMMER — CITY — £12,500
International company involved with insurance and finance are seeking an Analyst/Programmer. Initially you will be involved with enhancing and upgrading a new system and thereafter working on new projects, from system design through to implementation. This is a good opportunity to improve your analytical skills. The company retain IBM 4300 mainframes running under DOS/VSE and VSAM. Benefits include 4 weeks holidays, L.V.s, STL, and pension scheme
Ref. G/2339

PROGRAMMER — CITY — To £10,000
Bright young Programmer required to fit into a small team developing banking systems, for a large financial organisation in the city. They run 2 IBM 4341's with DOS/VSE, VSAM and CICS, and require 18 months + IBM COBOL with some experience of CICS. Drive and ambition are the other essential ingredients.
Ref. C/2201

IBM OPPORTUNITIES — WEST LONDON — To £11,000
There are currently many excellent opportunities in Berkshire, West London and Middlesex for experienced and ambitious programmers and Analyst/Programmers seeking to move development involvement. My clients are in the financial, retail, manufacturing and entertainment fields, and currently house IBM 4341 kit under both DOS/VSE and MVS with extensive use of CICS, DL/1. If you can offer 18 months + solid IBM COBOL experience, preferably with some on-line and/or database knowledge, the scope for career development is extensive. Excellent benefits and training where necessary. Call me for more information.
Ref. C/3642

PROGRAMMER — HERTS — £8,500 neg.
This manufacturing company are reviewing their D.P. requirements. They house an IBM 4331 currently run under DOS/VSE. The successful applicant should have 12 months + IBM COBOL background together with a strong desire to succeed in his or her chosen career, and wish to secure important positions within this progressive organisation. You will be involved with a variety of on-line development projects training given where necessary, and eventually move into analysis.
Ref. G/2472

OTHERS

HEWLETT PACKARD – COBOL — To £8,500
Excellent opportunity for a Junior HP 3000 Programmer to further his/her knowledge whilst developing an exciting and sound career. If you can offer 6 months + HP COBOL experience, hopefully but not essentially have utilised IMAGE, VIEW and QUERY then I would like to hear from you. My client, an international Berks-based concern, is expanding its European division. You will work on highly advanced development projects, and be called upon to travel abroad. An excellent salary is offered and the package includes relocation.
Ref. A/2477

SYSTEMS ANALYST — SURREY — £11,500 + Mort.
Large insurance company based in Surrey housing an ICL 2960 are seeking an experienced Analyst with at least 4 years' commercial D.P. experience. You will have spent the last two years working as a Systems Analyst and must be able to demonstrate skills in the financial area, either in pensions, insurance or the accounting sectors. A programming background would be a definite advantage and any mainline background would be considered. Benefits include mortgage subsidy, pension scheme and subsidised canteen.
Ref. D/2452

ICL ME29 — CITY — To £12,000
A major insurance concern, is currently seeking ME29 Programmers and Analyst/Programmers to join a team engaged mainly with IDS systems. Programmers should have a minimum of 2 years' ICL ME29, TME/TPS. Analyst/Programmers must have extensive exposure to IDS, and the ability to work from systems design through to implementation. Call now for further details or write enclosing full C.V.
Ref. D/2351-2

GRADUATES – ANY COBOL — To £9,500
This prestigious multi-national company utilises the latest technology to administer it's manufacturing and commercial projects. To assist in furthering the development of its already highly sophisticated systems an additional Programmer/Analyst is to be appointed. Ideal candidates should possess a degree and have a minimum of 18 months solid commercial COBOL experience. You will be trained on the UNIVAC 1100, and in all relevant database and on-line techniques. The attractive remuneration package includes EUPA membership and a large yearly bonus.
Ref. A/1010

BURROUGHS – SENIOR — To £13,250
The information service organisation, boasting the very latest in Burroughs, large mainframe technology, is currently seeking a Lead Programmer to head a team of 8. Such a person must have had a degree of Burroughs mainframe expertise, preferably involving DMS 2 GEMCOS and CANDE. A minimum of 4 years' D.P. experience is essential. Applications are mainly financial data based systems. The salary is easily accessible by road or public transport. A generous salary is offered and the benefits include, life assurance, 6 weeks holiday, and a relocation package.
Ref. A-2024

BASIC + AIMS/COBOL — £ NEG
My client, a major financial institution based in the centre of London, is due to expand, seeking all levels of DEC PDP-11 personnel from programmers to analysts. This internationally acclaimed company offers a challenging work mainly on Business Application systems. Exposure to RSX, DM is essential as is a background in at least 1 of the following: BASIC, AIMS or COBOL. The package includes profit share, non-contributory pension, P.R.P. and mortgage subsidies. Phone now for further details. Ref. A/2020

UNIVAC – COBOL — To £10,500 + mort.
This well-known financial organisation based in Kent is looking for an Analyst/Programmer. This position requires 18 months + UNIVAC mainframe COBOL. The company house a UNIVAC 1100 and run real-time Database Systems. The majority of work is development, and you will be trained as necessary on financial applications. The package includes flexitime, 4 weeks' holiday and a subsidised mortgage (where appropriate).
Ref. A/1924

PROGRAMMER — BERKS — £7,500
With a minimum of 12 months ICL COBOL expertise, you could be making an exciting career move by joining this large commercial company, and receive full training on the ICL 2900. It offers an opportunity to increase your technical skills and train in IP systems. Full company benefits package including pension scheme, life assurance and subsidised restaurant.
Ref. D/2469

IBM PL/1 — MIDDLESEX — £ NEGOTIABLE
Applications are invited from Analyst/Programmers with 2-4 years' IBM PL/1 experience, preferably in a commercial environment. The computer is an IBM 4341 running under VM/CMS, DOS/VSE with POWER and using CICS. All new developments are written in PL/1 using on-line facilities. You will be mainly working with development of new systems including predestination control, order entry, invoicing etc. Excellent company benefits including Pensions Scheme, travel allowances and subsidised canteen.
Ref. D/2502

ICL COBOL — S.W. LONDON — £8,500 neg.
Commercial organisation committed to an extensive development program using the latest techniques by a dual ICL 2966 running IDMS, RMS and VME are expanding their development team by recruiting an experienced Programmer. You will be a member of a team assisting where necessary in the design of systems preferably with at least 2 years experience of COBOL with VME/B, knowledge of TP and IDMS desirable. Benefits and the excellent prospects and training, and flexi hours.
Ref. D/2501

HONEYWELL-COBOL — To £10,500
This prestigious Essex-based concern is currently recruiting a Senior Analyst/Programmer to join its development team. You will play an integral part in the department involving system design and administration, specification of programmers, and support and training. You will have been in D.P. for a minimum of 2 years and have database and on-line expertise preferably in a Honeywell mainframe environment. Currently they have homes Level 66 GCOS running DMA. An excellent package and salary is offered.
Ref. A/1712

MINI COBOL — MIDDLESEX — £8,000 neg.
Salisbury Company of a large firm of building contractors, currently operating a DP mini 4/85 series computer with COBOL is seeking an experienced Analyst/Programmer, the machine runs a range of on-line applications including accounting, records and other small business systems. Candidates should have a minimum of 2 years experience within a Mini COBOL environment and be capable of working on-site from systems to implementation. Working as part of a large organisation you will receive all the company benefits and opportunities to progress your career, with the possibility of transferring to mainframe work.
Ref. D/2501

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Planning and Transportation

Systems Analyst
AP5-SO1 (£7,791-£9,231 p.a.)

Technical Programmer
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The Computing Services Group has a wide range of up-to-date equipment linked to the Authority's I.C.L. 2976 and 2980 computers. This includes DRS 30 and 60 micro computers, graph plotter and digitiser. The Group is responsible for providing a comprehensive range of services to the technical and management functions of the Department. The recent advances in technology have significantly increased the demand for computing services and a very wide range of work is in hand.

A Systems Analyst (male or female) is required to assist a team currently involved in developing a waste disposal system using IDMS, a major fleet management system, population projection programmes, and many other systems. At least one year's systems analysis experience is essential preferably using VME/B, IDMS and CDBOL. Please quote reference Dn84.

A Technical Programmer (male or female) is required for a team developing and maintaining civil engineering programmes and giving computing advice to engineers. The main development languages are FORTRAN AND BASIC. Some experience within this field is preferred but consideration will be given to well qualified applicants who have experience of working in a technical environment, have an aptitude for programming and can communicate clearly with other technical staff. Please quote reference Dn86.

We offer modern air-conditioned offices overlooking the Trent Valley, housing is cheap and we offer generous relocation expenses in appropriate cases.

Write stating John Ramsay or Nottingham (0602) 608081, ext. 307 to discuss the posts, or write for an application form and job description to the Director of Planning and Transportation, Staffing Section, Trent Bridge House, Fox Road, West Bridgford, Nottingham NG2 6BJ. Closing date: June 18, 1984. Please quote appropriate reference when applying.
(3803)

Nottinghamshire County Council
County Hall · West Bridgford
Nottingham NG2 7QP
(3807)

SYSTEMS ANALYST ANALYST/PROGRAMMER

FLOTILLA SHOES LIMITED – a subsidiary of C.&J. Clark Limited operating shoe shops trading as Peter Lord, James Baker and Bayne & Duckett.

We need a lively Systems Analyst and an Analyst/Programmer to help us develop new retail systems covering stock control, distribution and accounting. Previous systems analysis experience is essential and knowledge of retailing, data base and on-line systems would be an advantage. We currently operate two Univac 90/30 computers with on-line terminals.

Remuneration package includes non-contributory pension scheme, profit sharing scheme, HUPA and staff discounts.

Please apply for application forms to Mrs Fiona Wand, Personnel Officer, Peter Lord Ltd., P.O. Box 2, Street, Somerset. Tel: 0458 42131 ext. 2085.

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(PART-TIME)

A Computer Programmer, part-time, with the possibility of becoming full-time in the near future if desired, is needed to work on a number of research projects concerned with medical statistics and epidemiological studies of childhood cancer.

Familiarity with one or more of the following would be an advantage: a statistical package; Algol 68 or Fortran, communication between mainframes and microcomputers.

This will initially be a half-time appointment paid pro-rata on the lower half of the University Research 1B Scale (£6,560-£9,370 under review) starting as soon as possible. Applications stating previous computing experience and giving the names of two referees should be sent to Dr G. J. Draper, Childhood Cancer Research Group, Radcliffe Infirmary, Oxford OX2 6HE. Further details are obtainable on request (phone Oxford 728444).
(3844)

REAL TIME SPECIALISTS
Take a sniff at this pot-pourri

8½K to 20K+

The air is heady with the sweet scent of opportunity. Trouble is, we've got a headache trying to think of how best to get across to you the extent of those opportunities. Well here we go.

Users, Manufacturers and Systems Houses (large and small), in London, Home Counties and other parts of England, Ireland, Scotland and Europe.

have urgent requirements for,

Programmers/Analysts, Software Engineers and Designers, Microprocessor Software/Hardware Engineers, Project Leaders/Managers, Consultants (all levels)

with experience of:

DEC PDP/11, VAX, SEL, Data General Mini's, Argus 700, Tandem, Intel, Motorola, Hewlett Packard etc., using high and low level languages.

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You must have at least 3 years experience in Real Time systems in one of the aforementioned areas of application. Our more unusual requirements are for German speaking Software Engineers to work in Switzerland for indredibly high salaries, and, Software Engineers for Dublin, experienced in VAX, COBOL, and a plus would be large Data Base systems.

The aroma is intoxicating. Ring Beryl McLaren, 01-836-9719, any hour of the 24 (week-ends too), you'll get a personal reply, not a recorded message.

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Up to 11-00pm each evening and weekends

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microcomputers and peripherals

Technical Support Co-ordinator

to £12,000 +car — **West London**

Our client has established a leading position in the rapidly growing market place for portable microcomputers and peripherals. As part of a highly respected, international group the company is able to reap the benefits of innovative R & D and a reputation for high quality, reliable engineering. New and innovative products are being regularly launched, while demand has created a rate of growth which has more than doubled turnover each yeer. The provision of a high standard of technical support is considered to be a fundamental element in consolidating the success of the operation.

The role of Technical Support Co-ordinator is seen as providing a vital range of services to the company's distributors and dealers. This will include:

— Providing engineering guidance and support
— Assisting in training of field engineers
— Producing and distributing technical bulletins and reports
— Providing input for technical manuals
— Providing specialist technical assistance
— Advising on hardware modifications

The need is for a highly competent microcomputer or peripherals engineer, able to communicate in a very effective manner with both customers and contacts. A recognised technical qualification to HND or degree standard is desirable, as is a working knowledge of high and low level languages. The rapid introduction of new and innovative products will demand that the successful applicant is able to work in a fast moving environment and has the ability to grasp new concepts with minimum delay.

This position offers an outstanding career opportunity within an organisation committed to establishing a leading position in Information Technology.

Applications are welcome from men and women who can telephone or write to: T. W. Toms, Peterson Davidson Limited, Elliott House, 28A Devonshire Street, London W1M 1RF. Tel: (01) 486 8991.
(3911)

PDL MANAGEMENT & EXECUTIVE SELECTION FOR HIGH TECHNOLOGY BUSINESS

Systems Analysts/Application Programmers

Now choose the right job in the right company: Hambro Life.

Few companies in the UK can match the Hambro Life success story – we're the country's leading unit-linked life assurance company with assets of over £1.8 billion, now looking beyond the life and pensions business into the financial services and expatriate markets.

One reason for this success is an Administration service that is second to none; at the heart of the Administration are flexible integrated computer systems that have enabled us to react swiftly to market and business needs, and made our exciting future plans a real possibility.

So if you've chosen the right career, but now want a growing company offering a secure future which will produce rewarding opportunities for personal development, consider Hambro Life.

- **Systems Analysts/Designers**
- **Application Programmers**

– up to £13,000 plus benefits.

Ideally, you'll be a graduate in your twenties, with 2 or 3 years' DP experience:

You will already have had the opportunity to demonstrate that you can work hard to high standards, with the ability to understand the business implications of the work you do.

You'll now be looking for the opportunity and rewards to match your potential – either because you've already outgrown your present company, or else you feel the need for a more productive business-like environment.

Systems

Your last two or three years will have been spent in a large-scale systems environment, getting involved in system design and implementation reflecting the high qualities we demand, and now looking for a company where computer systems are central to its business.

Programming

We are a large IBM user offering an environment that allows our programmers to develop into technical roles or into team leadership according to their abilities and preferences. We need application programmers with 2 or 3 years' experience – although we use PL/1, we will be prepared to retrain COBOL users.

In addition to the attractive salary, our first-class remuneration package includes profit sharing and share option schemes, non-contributory pension, BUPA, and generous assistance with moving to Wiltshire.

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SYSTEMS DESIGN ENGINEER — South Coast

Will be responsible for research and development in new signal processing techniques, particularly as applied to Modems and Control Systems. A good honours degree or PHD. Applicable to modern signal processing is required along with a minimum of five years' relevant experience. DLM 22/1

SOFTWARE DESIGNERS — West London

Our client requires Development Engineers to design and implement Software for a Multi-microprocessor Military System. They will design and test, and be using, an Emulator and Cross Assembler running on a Vax machine. Candidates should have a degree and at least three years' assembler language on DEC machines in a defence environment. DLM 22/3

SOFTWARE ENGINEERS — South Coast

Our client requires Engineers to plan and prepare Software Programmes for Military Microprocessor Digital Message Switching Based Communication and Speech Processing Equipment. A degree is needed, and an experience of software preparation for M6800/68000. Experience of Pascal, Basic or Fortran is essential. DLM 22/4

HARDWARE ENGINEERS — Surrey

A major Systems House specialising in defence systems have a number of openings for Engineers with one or more of the following skills: Building Microprocessor Systems, Floating Point Systems, Digital Electronic Engineering, and Fault Analysis. DLM 22/6

OPERATIONAL ANALYSIS — London and Surrey

One of the largest International Software Houses, has a number of openings at all levels, for graduates with experience in the Operational Analysis field. Candidates with experience of Defence Systems will enjoy a progressive professional career path. DLM 22/7

SOFTWARE DESIGNERS — West Country

The centre of Advanced Sonar Technology is looking for degree qualified people, able to develop detailed software design concepts and to lead technically, a team of Implementation Programmers. DLM 22/8

SENIOR PROGRAMMER — Surrey

A major defence contractor requires a Senior Programmer to produce, test and support software on a VAX 11/780 to support the development of Microprocessor based software. Candidates should hold a degree or HND/HNC in a related subject, and experience of 8086 Assembler, knowledge of VAX/VMS and Coral 66. DLM 22/10

HARDWARE ENGINEERS — Middlesex

The Radar Division of an International Electronic Manufacturer is strengthening their New Product Development Team. Engineers are required to develop new digital hardware for high speed processing of Real Time Signals. A minimum of three years' Logic Design plus a degree is needed and an EMC background would be helpful. DLM 22/11

SENIOR SOFTWARE ENGINEER — Bedfordshire

A degree, plus a minimum of three years' experience in Real Time development at Assembler level design is required. High level language experience in Pascal, Coral, BCPL when applied to micro-based systems would also be useful. DLM 22/12

SOFTWARE ENGINEERS — Wiltshire

A major International Telecommunications Company requires engineers educated to degree standard, with at least two years' experience of Coral. Familiarity with the use of CPM, Intel, MDS or application concerned with Man Machine Interface would be advantageous. DLM 22/13

SOFTWARE ENGINEERS — Switzerland

A major telecomms company seek additional Programmers to work on state-of-the-art switching systems. Candidates should have a degree, be in their twenties and have experience in some of the following: real-time multi micro processor operating systems, comms. devices, HDLC, high or low level languages, e.g. Assembler, Chill, Pascal, SPC switching systems, call handling experience, CCITT recommendations, System 12/40 and System X. DLM 22/3

GRAPHICS — West Country/Yorkshire

A London-based Systems house is currently seeking scientific programmers to work on site in the West Country for a minimum of two years. Candidates should have experience of Fortran on VAX machines and an interest in graphics-type applications. In addition, Programmers with PDP-11, Fortran, Basic and Pascal are required for engineering systems. DLM 22/5

COMMAND & CONTROL — London

One of the largest International Software houses with their headquarters in London have a requirement for Software Designers with a minimum of one year's experience in Real Time Systems Design. Candidates should have a degree plus experience in one or more of the following: Defence Systems, CORAL, Meecot, VAX, PDP-11, INTEL 8086. DLM 22/9

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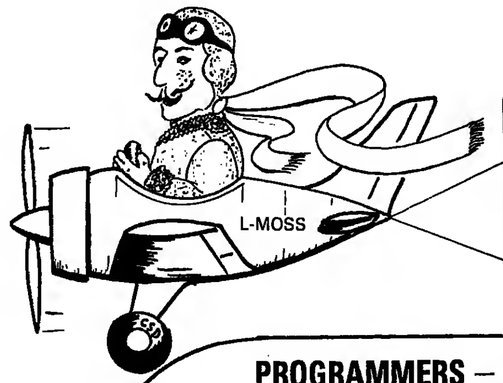

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ANALYST/PROGS — to £14,000
PROJECT LDRS.

Several exciting opportunities have arisen for persons with strong programming backgrounds and proven analysis skills to join a major international software house, based in the City. Their expansion opens new positions in development and support roles with their banking client base utilising the latest VAX and PDP equipment. A financial systems background is desirable and banking expertise would be of special interest. At senior levels management and pre/post-sales vacancies are immediately available.

VARIOUS LEVELS — £8-14,000
ICL COBOL

We have been retained by a number of ICL users in London and the Home Counties to find experienced systems and programming staff. We wish to talk to Programmers and Analyst/Programmers with at least 18 months' COBOL experience working with ICL 2900 and ME29 equipment. Analysts should have at least one year's formal analysis preferably with a COBOL background. Applications from persons living outside the area are welcome as company benefits include relocation packages.

ANALYST/PROG — c. £9,500
DEC/VAX

Our Client, a City stockbroking company with recently installed VAX equipment, is seeking an experienced BASIC Analyst/Programmer. They require at least two years' programming on Digital equipment and would be very interested in applicants with some VAX exposure. Salary and prospects are excellent and a valuable benefits package is offered which includes a high guaranteed bonus scheme.

PROGRAMMER — £8,000
RPG II

Applicants with at least one year's RPG II in a 34 environment are invited to apply for this post. The company is a subsidiary of an international Group with a small DP department based in the City. The work would involve a range of projects to include financial, personnel and marketing. Good training would be offered including formal Analysis courses.

ANALYST/PROGS — £11,000
PL1

Applicants should have at least two years' PL1 in a commercial/manufacturing background. The Client is an established and progressive user with the DP centre based West of London. Not only should applicants have strong user skills they should also have good management potential since the client regards all successful candidates as future managers. There is a full relocation package available.

PROGRAMMER — £8,750
RPG III TRAINING

North Surrey based company has identified a requirement for an RPG programmer. They are an established 38 user and have ample in-house expertise to give full 38 training to existing RPG programmers. The minimum requirement is at least 1½ years' RPG II programming, preferably from a 34 environment. As well as full 38 training, the client encourages early exposure to systems.

ANALYST/PROGS — c. £10,500
COBOL/FINANCE

Two C. London based financial concerns require Analyst/Programmers to join their teams. Applicants should have in excess of two years' COBOL gained in either a financial environment or on BURROUGHS or NCR hardware. The successful candidate will have leadership potential as a move into a junior management position is expected. Excellent perks include full banking benefits, annual bonus and overseas travel.

PROGRAMMERS — to £10,000
BURROUGHS

Programmers with 18 months' BURROUGHS CMS experience are required by Clients based in Central and to the West of London. With both companies there would be a considerable amount of client contact and candidates must therefore be professional in both appearance and attitude. Excellent career prospects and working conditions are augmented by perks which include the possibility of a company car in the future.

SALES SUPPORT — £NEG+ CAR
C. LONDON

A well-known manufacturer requires experienced DP personnel to join their expanding sales support teams. Applicants should have a good academic background, a minimum of 18 months' commercial programming and preferably had some user/client contact. A financial background would be useful but not essential as the company is committed to extensive and continuous training of all employees. This is an excellent career opportunity for ambitious people who wish to move into a sales oriented position.

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LONDON AND THE HOME COUNTIES

SYSTEMS ANALYST

BERKSHIRE c£11,000

Our client is a leading manufacturer of engineered components and is currently engaged on a long term D.P. development plan. Hardware utilised is an ICL 2956 under DME and the successful candidate will be assessing and reappraising commercial and production systems. This will involve taking managerial responsibility on occasions in addition to involvement with future planning requirements. A flexible approach is required and applicants who could see this environment as their next career move should contact Marshall Cheman as soon as possible for further details.

MAJOR INSURANCE GROUP

ANALYST PROGRAMMER c£10,500

A 'trouble shooting' Analyst Programmer is required by this prestigious employer based in the City. The work will involve significant analysis and a great deal of user contact, therefore good interpersonal skills are required. The position is particularly relevant for candidates with an IBM COBOL background possibly with PL/1 as a second language.

REAL-TIME SOFTWARE

PROGRAMMERS AND MANAGERS £8-£15,000

A number of vacancies exist in and outside London at ALL LEVELS for applicants with real-time experience. A knowledge of one of the following is required, RTL II, IISX IIM, MACRO II, COMMS, CAD/CAM, OEC, MOTOROLA, INDUSTRIAL PROCESS CONTROL, ELECTRONICS. As these are several vacancies please contact MARSHALL CHEMAN for further details.

OPPORTUNITIES IN PL/1

ALL LEVELS to £12,000

We have taken on a wide range of vacancies for people with PL/1 experience recently. Our clients include SOFTWARE HOUSES, CONSULTANCIES, INSURANCE COMPANIES and INVESTMENT MANAGEMENT CONCERNS with locations in LONDON, HERTS, SURREY, MIDDLESEX and SUSSEX. If you are looking for a change of environment call TARGA immediately.

URGENT REQUIREMENTS

LONDON AND HOME COUNTIES to £15,000

OEC, PDP11, RSTS/E, BASIC+, +2 Analyst Programmers £10,000 Surrey

R.P. FORTRAN and COBOL, Programming Team Leaders £12,500 Bucks

WANG VS, RPG II Programmers £9,500 London

DEC PDP11, RSTS/E BASIC+, +2 Programmers £9,500 Herts

ICL 2900, Senior Programmer, Commercial Applications £10,000 Kent

DEC, VAX, BANKING SYSTEMS £10-£15,000 London

MARKET LEADER – BERKS

SENIOR ANALYST £11,500

We are looking for an experienced Analyst capable of assuming responsibility for a team. An exciting new phase of development is being embarked on by our client and this is a golden opportunity to take an real responsibility. If you can demonstrate the successful implementation of a significant system in an IBM environment we would like to hear from you.

PETROCHEMICALS

PROGRAMMERS c£10,000

Ambitious young programmers are sought by this Blue-Chip organisation. Your experience should be within a DOS/VSE installation and you should have used CICS-COBOL for a minimum of six months. There are excellent opportunities for candidates who would appreciate DATABASE training and scope for personal development.

STOCK-BROKING

ANALYST PROGRAMMERS to £11,000

A rare opportunity has arisen to join a busy and progressive CITY-based company who are world leaders in their field. If you enjoy problem solving and plenty of user contact these positions will undoubtedly appeal. TRAINING in CICS is offered and we would like to hear from candidates with IBM COBOL experience who are prepared to work hard to realise their full potential in an environment where ample scope will be given for career development.

BANKING BENEFITS

SENIOR PROGRAMMERS c£11,500

We need 4/5 PROGRAMMERS and SENIOR PROGRAMMERS who are ready to expand their experience into the Banking environment. The financial benefits are, as ever, very attractive and development work is another big feature of these appointments. We are looking for IBM COBOL together with use of CICS and/or CL/1 with Program Design a feature of the more senior positions.

INSURANCE SYSTEMS

SENIOR ANALYST £14,000

Our clients are an expanding City-based insurance company. A SENIOR SYSTEMS ANALYST is required to take a key role in their systems development plans. While experience of insurance/Reinsurance applications is useful, candidates must have been involved in the design of On-Line/Database systems in an IBM environment. BENEFITS include MORTGAGE and TRAVEL assistance.

CSD ANALYST PROGRAMMERS AND PROJECT LEADERS

to £14,000 + CAR

Due to a policy of carefully controlled growth, our clients require a number of additional members at staff in 1983. They have been extremely successful in building systems based on the IBM S34 and S38 and require experience with this range at all levels. A superb BENEFITS package, PRESTIGE offices, and great scope for advancement are offered.

MANUFACTURER

LONDON BASED c£11,000

A leading manufacturer in the DATA PROCESSING industry is URGENTLY seeking a mature ANALYST PROGRAMMER to undertake PROJECT MANAGEMENT RESPONSIBILITY. With major development work being the area under consideration, candidates will need to demonstrate very good COMMERCIAL ANALYSIS SKILLS, major project completion from start to finish and DEC, HP, PRIME or other mini experience. An interest in office automation and good communicative skills are also an advantage. Attractive BENEFITS and excellent CAREER prospects.

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TECHNICAL PROGRAMMERS

COVENTRY HIGH NEGOTIABLE SALARY

One of our largest clients is looking to considerably expand its technical and system programmers division. We are therefore looking for programmers and analyst with good FORTRAN or PASCAL knowledge, and experience in CAD/CAM, communications or CAE.

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COVENTRY

DEVELOPMENT STAFF c£9,000

If you have substantial experience of BASIC or BASIC+, working on any of the small business machines, this up and coming firm with an overflowing order book is ideal for you. Security, variety and good benefits are available as well as the opportunity to contribute to the growth of an expanding company.

MIDLANDS BASED

BUSINESS CONSULTANTS c£10,000

If you have RPG II or III experience and wish to move into consultancy, the ideal time is now. This large and reputable software house is looking for consultants preferably with experience on the IBM S30 ranges of machines to work on a wide variety of interesting applications.

FINANCIAL/BUSINESS ANALYST

E. MIDLANDS c£11,000

The group computing function of a large manufacturing concern is looking for an experienced Systems Analyst. A minimum of five years' overall experience with about two years spent in Analysis, preferably with some payroll experience would be ideal.

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(3795)

ICL OPPORTUNITIES – BERKSHIRE

Our Client, a major manufacturing company and market leader in its field is seeking further systems and programming professionals to enhance its development team. They have a heavy investment in their Date Processing facilities currently based on ICL 2956 and ME29 equipment. They are about to embark on a five-year development plan, expending computerisation of their commercial and production control systems and urgently require the following key personnel.

SYSTEMS ANALYST c. £11,000

To take a leading role in the design and implementation of new developments and their interfaces with existing systems. You should have two-three years' proven analysis and design experience, preferably with a programming background and be confident with users at all levels.

ANALYST/PROGRAMMER c. £9,500

Working directly with user groups to implement, write and support smaller systems. You should have three years' ICL Cobol including one year as an Analyst/Programmer.

PROGRAMMER c. £7,500

A minimum of one year's ICL Cobol is required with a strong desire to progress towards Analysis.

All positions carry a company benefits package which includes bonus, pension scheme, free life assurance and five weeks' annual holiday.

For further details about these challenging and rewarding positions contact Chris Smith at Apex.

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You will be working in a project team enhancing the major systems to ensure that they keep pace with new systems developments and user requirements. It is a continuous development environment and you will have considerable contact with both user and other development teams.

Aged between 23 and 30 you should have had two years programming experience followed by at least a year in systems analysis which should have included involvement with a major implementation. Hands-on Univac 1100 experience is preferred but good mainframe knowledge is acceptable. Salary will be negotiable to £10,000 and will be accompanied by a benefits package which includes 22 days holiday, free life assurance, a 1.5% contributory pension scheme, discounted company purchases and a subsidised staff canteen. Assistance with relocation may be given where relevant.

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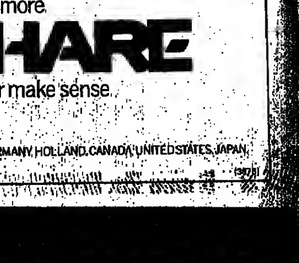

New Senior Appointments in Technical Software

Since the earliest days of Electronic Warfare, we at MEL have been numbered among the technology pioneers. Today this means the routine application of the very latest software both to the design and development of components and systems, and to the actual management of complete systems in the field.

Major contracts, from both military and civil clients throughout the world, mean we now need to add a small number of personnel of the highest calibre to our Technical Software Department, here in West Sussex: new appointments offering not only the opportunity to gain an exceptional level of professional expertise at the very forefront of software development, but also to relocate to an attractive area just 20 miles from London, yet only 30 minutes' drive from the South Coast.

CAD Specialist and CAD Engineer

To advise on the selection and support of existing and future CAD program for use both on internal DEC VAX 11/780s and by external bureaux for applications such as: PCB design, microwave component design, antennae design, circuit analysis, logic simulation, stress analysis and mechanical draughting. The Engineer will assist the CAD Specialist in all these activities. Qualifications for both appointments: a degree in Physics or Electrical/Electronic Engineering, experience in the development of electronic equipment, specific knowledge of some of the areas mentioned and programming ability in FORTRAN and other languages. Refs. TS1 and TS2.

Cross Software Support Specialist

To advise on, implement and support cross software such as Coral: RTL2, Coralxt and cross assemblers running mainly on DEC VAX 11/780s and software support tools such as Adacross compilers, APSE, automatic documentation, configuration control software etc.

Qualifications: degree in Computer Science, Maths, Physics or Electronic Engineering, plus in-depth understanding of compilers and other support software as specified. Ref. TS3.

Senior Software Design Engineer

To work on the software system design of complex defence systems, particularly EW systems.

Qualifications: degree in Electronic Engineering or Physics plus several years' experience in the development of software for EW systems, some of it at team leader level. Familiarity with formal documentation, RTL2, Coral and mascot. Ref. TS4.

Senior Software Engineer

To develop software for complex defence systems, particularly EW systems.

Qualifications: degree in Electronic Engineering or Physics plus several years' experience in EW software development. Familiarity with formal documentation, RTL2, Coral and Mascot. Ref. TS5.

DEC VAX Operations Specialist

To provide consultancy services for the Technical Software team in the running of three or more DEC VAX 11/780s and a DEC PDP 11/44. Additionally, to introduce enhancements and support systems software.

Qualifications: a technical/numerate degree plus experience of supporting DEC VAX computers in a similar environment. Ref. TS6.

Naturally each of these key appointments will command a highly attractive salary and benefits package, including generous expenses for relocation, while the prospects for further career development, both within MEL and within the Philips Group of Companies, are excellent.

To arrange an early discussion, please contact: Sheila Clarke, MEL, Manor Royal, Crawley, Sussex. Tel. Crawley 28787 Ext. 873.

MEL

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THE JOB

This is a new and senior position to lead this key function for coordinating, applying and expanding the use of database technology. The first of a series of large DB projects is about to be developed for a major operating company.

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For an informal discussion please phone Bob Tyrrell on Bedford (0234) 55233 daytime or 02606 322 evenings/weekends. Alternatively send brief career details to me at Granada Computer Services, PO Box 31, Ampthill Road, Bedford MK42 9QQ.

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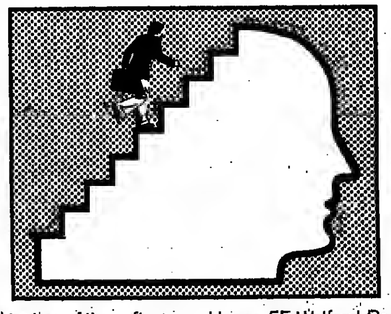
PROGRAMMERS: IF YOU'VE GOT THE GET UP AND GO, YOU COULD GO UP AND GET £13,000



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However, above and beyond that you'll need tons of enthusiasm and boundless energy if you're going to keep up with a young expanding company of Comshare's stature.

You'll be working in our Product Planning and Development division, and will be responsible for the design, coding and testing of the software products that make up Comshare's Decision Support Systems.

The products encompass financial planning, business modelling, data management, data analysis and graphics, and are designed for micros, minis, mainframes and Comshare's own Worldwide Timesharing Network.

We'll give you full training in software development methodologies and, if it's needed, in programming languages such as Pascal.

You'll be pleased to hear we'll also give you a good salary.

Depending on experience it'll be up to £13,000, plus all the usual fringe benefits.

And, don't forget, on top of that there are the almost limitless opportunities for growth and job diversification that only a growing company like Comshare can offer.

Ring Helen Fallows on 0533 545 242 or write to her at Comshare Limited, James House, 55 Welford Road, Leicester LE2 7AE and she'll put you in touch with someone who can tell you more.

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This new location, e few minutes from the A3 end New Malden Station, opens up new end exciting career opportunities for quelified Engineers in the Hardwere end Software industry.

Our client is interested in candidates with Defence Systems experience and some of their immediate requirements include:

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   A degree plus 2/3 yeers' experience of Signel Processing. Experience with Floating Point Systems equipment would be a considerable advantage.
3. **DIGITAL ELECTRONICS ENGINEER**
   Electronics Engineering degree or equivalent, one or two years' prectice! experience with exposure to software.
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5. **TEST TECHNICIAN**
   Experience in essembly and test of Digitel Electronic Subsystems.
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For further information about our Client please telephone 01-399 9183 or write enclosing a C.V. to:

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The recession

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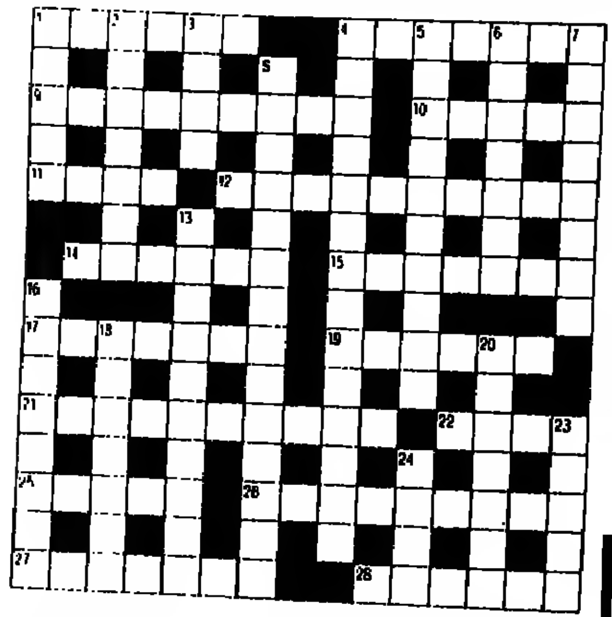
CROSSWORD

Prize Crossword No 41

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, June 10. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..(Miss, Mrs, Ms, Mr)

Address..

Telephone..

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed ....Date..............................

ACROSS

1. Walk awkwardly in pit, carrying books (6)
4. Opportunities derived from rich ancestors (7)
9, 10. Floor at which couple gets sweet for very low cost (5-4,5)
11. One gets attention at home with doctor about (4)
12. Didn't conk so much around the North, lacking mates (10)
14. See me take flight, crying like an animal (6)
15. Sees art unexpectedly in a piece of mosaic (7)
17. Doctor that's grabbed by worker, going round (7)
19. Like a monster, making knight go back – horrific (6)
21, 22. Old fan, fuddled with ale, is afraid to be ignored (4,2,4,4)
25. Once I join the French, I'm an outcast (5)
26. Arrive casually with list, one containing many names? (4,5)
27. Chap about to deposit one is Indonesian, possibly (7)
28. Dad's bird is useless through senility (4,2)

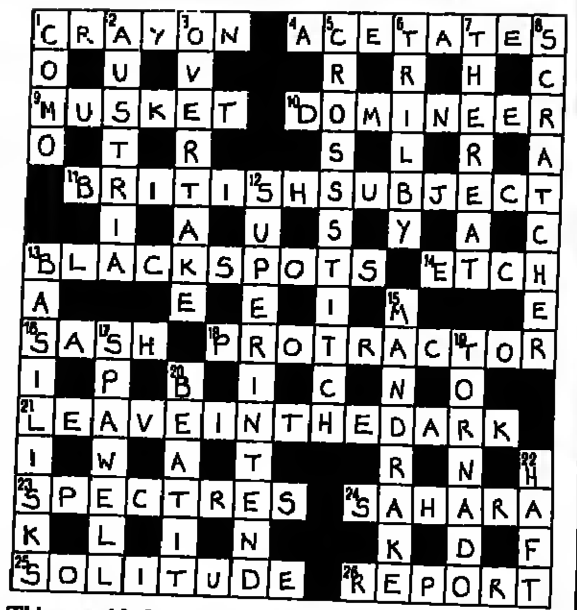
DOWN

1. Nonsense is all right in humour – not half! (5)
2. I'm a goblin, and have tucked into the cheese (7)
3. Large amount of water needed for reddish pigment (4)
4. Meeting an associate in traditional fashion (14)
5. It's a house plant – part is said to grow wild (10)
6. Beat, without anger, an Egyptian capitalist, as it were (7)
7. He's a sower, and seems dizzy (8)
8. Metal suitable for ships of the Wavy Navy? (10,4)
13. Irritatingly early, clutching a rambling rose (10)
16. Henry's loud call for a short break from studies (4-4)
18. Oxford college dance – look, I will come up (7)
20. Wader gets a disapproving noise among the group (3-4)
23. An ugly object, flimsy, left out (5)
24. Strike a priest (4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

Solution to Prize Crossword No 40



This month's £10 first prize goes to Karen Davis, a regional field support group manager at Hewlett-Packard in Wokingham. Prizes of £5 each are on their way to John Hill, marketing manager at NCR in London, and to John Compton, an analyst/programmer with Hayward-Tyler in Luton.

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Conditions of service include six weeks' annual holiday plus on-site sports and social facilities. Further particulars and an application form can be obtained from Mrs J. Moffett, Faculty of Technology (3945/1), The Open University, Walton Hall, Milton Keynes MK7 6AA. Telephone Milton Keynes (0908) 653941 or there is a 24-hour answering service on Milton Keynes (0908) 653868.

Closing date for applications: 18 June, 1983.
(3969)

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The officer appointed will report directly to the Regional Administrator, advise the Regional Team of Officers and the Regional Computer Policy Committee on computer policies and plans, and co-ordinate and develop computing activities within the Region. He/she will have had senior experience in the computing field, demonstrate a high level of management ability and, ideally, will possess a degree and/or suitable professional qualification. Experience or knowledge of health service computing would be an advantage.

Candidates wanting to discuss the post informally should ring the Regional Administrator, Mr P M Cooke (0865) 64861 Ext: 208 or HQ Personnel Officer, Miss J Mitchell (Ext. 246).

Further details and an application form available (quoting Ref. V54/83) from
The Recruitment Officer, Oxford Regional Health Authority, Old Road, Headington, Oxford OX3 7LF.
Telephone: (0865) 64861 Ext. 246/228.
Closing Date 17th June 1983.

Oxford Regional Health Authority

SALES BIT

Quality of Management – 54

Calculating the rewards of success

LAST week I discussed the implications of performance-related income and how much salespeople should be paid. This week I would like to concentrate on the various ways in which the rewards of sales success can be calculated.

Few employees base their remuneration of salespeople on a detailed evaluation of the fundamental needs of the employee, the real demands of the job and the considered objectives of the company. What kind of salesperson would be ideal for the job? What experience and formal qualifications are necessary? What type of person would best fit our type of organisation? Do we need someone who could eventually control the total sales operation? What level of reward would attract such a person to work for our company? What rewards and conditions would allow him to sustain his social and domestic standing? How much does he need in order to free himself from financial pressures, thus allowing him to concentrate all his energies on achieving sales success?

Sadly, the process of calculating the basis of remuneration is usually carried out the wrong way round: What kind of salesperson can we get for the sort of ... the company ... erate from the efforts of a successful salesman.

Incentive to achieve must surely be the primary purpose of performance-related income. This cannot be brought about by expecting different salespeople in different territories to bring in the same results.

Many companies set a sales target which is the same for all sales areas, often arrived at by dividing the national sales target by the number of people in the sales team. What a nonsense! Sales targets must be set in accordance with the capability of the individual salesman and the potential of the territory.

One particularly common situation is best described by way of example: Salesman 'A' has a Central London territory which not only contains many prospective clients but also several established large-scale users. Salesman 'B' has been with the company for less than a year and is responsible for West Yorkshire, which is not only suffering considerably from the effects of economic recession but prior to his arrival on territory had been without a salesman for over six months.

The targets for the two territories are not the same for the sales manager has at least had the perception to realise that the potential is different. So he gives the London salesman a target of £500,000 and the one in the North is reduced to £350,000.

At the end of the selling year the London salesman is a hero at 112% of quota and earns £26,000 and the Yorkshireman is a disappointment at 88% which gives him £17,000. The fact is the man in the South has been creaming off those big prospects that required the least effort, whereas the man in the North has been working his butt off to re-establish the credibility of the company and its products and close the few deals that were available in less than the anticipated selling cycle.

Such a circumstance is a travesty, the very opposite of what performance-related income is about.

Every salesman is entitled to the occasional "bluebird"; but each territory must be given its individual objectives according to its potential and the salesman rewarded relative to his achievement of such goals.

While this should take into account the inevitable "learning curve" of the new recruit, it should not discriminate between the capabilities of established salespeople.

The best way to lose your top salesman is to keep saddling him with a bigger and bigger sales target just because he keeps "getting his numbers" while those at the other end of the performance scale get an easy ride just because they have never been guilty of outstanding ... money is only a motivator up to a point. As we say in Yorkshire, "enough's plenty", and when the salesman reaches a level of earnings that can service his social and domestic needs he is inclined to ease off until the beginning of the next selling period. Consequently, it is important to ensure that the goals set for individual salespeople include other challenges in addition to the possibility of earning a lot of money.

Many possible non-revenue objectives can be set, such as achieving a given total of installations within the territory, winning a targeted number of new account sales, securing an agreed level of individual product penetration, achieving a required educational standard, and so on. These can be augmented by various forms of job enrichment and other forms of preparation and qualification for promotion.

Many companies divide their salesforce into grades, simply to give the individual an incentive to graduate up the selling scale in accordance with achievement – and that's not a bad idea.

Alan Williams

PUZZLE ANSWER

FOR the calendar to work, each cube must definitely have 0, 1 and 2, so the righthand one in our illustration has these three digits concealed. The lefthand cube must have 0, 7, 8, and the digit 6 in such a form that it looks like a 9 when inverted!